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Financing Value Chains of Perennial Fruit Crops in Mozambique

Recommendations for future interventions of financial cooperation

Abdul Ilal, Michaela Armando, Jakob Bihlmayer-Waldmann, Xavier Costa, Anita Demuth, Laura Köster, Alda Massinga, Osvaldo Mateus, Mariana Mora, Regina Pöhlmann, Matthias Schmidt, Luciana Zanotto, Clemente Zivale

2016

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Seminar für Ländliche Entwicklung | Centre for Rural Development

SLE has been offering practice-oriented vocational education and training for future experts and managers in the field of international development cooperation since 1962. The courses range from Postgraduate Studies to Training Courses for international experts in Berlin to practice-oriented research and consultancy for organizations and universities active in the field of development cooperation.

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Foreword

For 53 years, the Centre for Rural Development (Seminar für Ländliche Entwicklung, SLE) at the Humboldt Universität zu Berlin has trained young professionals in the field of German and international development cooperation.

Three-month practical projects conducted on behalf of German and international organisations in development cooperation form an integral component of the one-year postgraduate course. In interdisciplinary teams and with the guidance of experienced team leaders, young professionals carry out assignments on innovative future-oriented topics, providing consultant support to the commissioning organisations. Involving a diverse range of actors in the process is of great importance here, i.e. surveys from the household level to decision-makers and experts at national level.

The studies are mostly linked to rural development (including the management of natural resources, climate change, food security or agriculture), the cooperation with fragile or less developed countries (including disaster prevention, peace building, and relief), or the development of methods (evaluation, impact analysis, participatory planning, process consulting and support). Over the years, SLE has carried out over two hundred consulting projects in more than ninety countries, and regularly publishes the results in this series. In 2015, SLE teams completed studies in Ghana, the Philippines, Mozambique and Namibia.

The present study is the synthesis of the development and adaptation of a comprehensive methodology for assessing financing gaps along the value chain of perennial fruit crops as well as the elaboration of recommendations for future financial interventions of the development cooperation in order to develop adequate financial products and services for actors of agrarian value chains.

The study was commissioned by the KfW Entwicklungsbank and implemented by the SLE in cooperation with the Instituto Superior Politécnico de Manica (ISPM) and the Universidade Federal Rural do Rio de Janeiro (UFRRJ).

The full report is available from the SLE and downloadable from the SLE website.

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Special thanks go to the staff of all financial institutions that kindly received us during our research and provided us with crucial information on relevant aspects of their work. Our sincere and warmest thanks also go to Wigle Vondeling (BTM, Head of Agri-finance), who shared his knowledge with us and supported us in getting in touch with the relevant actors from the financial sector. Furthermore, we are most grateful to the GIZ-ProEcon team, particularly to William Diaz, for sharing their experience in this field from a technical assistance perspective.

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gize to all those we have been unable to mention by name. We thank all of them, as they found time to receive us, to answer our questions and to discuss with us. We are glad that they shared with us one of the greatest aspects of working in Mozambique – the incredible hospitality.

This study is the outcome of close cooperation with partners from Mozambican and Brazilian scientific institutions. Without the collaboration of the *Instituto Politécnico Superior de Manica* (ISPM) and the *Universidade Federal Rural de Rio de Janeiro* (UFRRJ) we would not have achieved the study results. The active participation of Michaela Armando, Xavier Araújo, Osvaldo Mateus, Mariana Mora, Luciana Zanotto and Clemente Zivale during the data collection and analysis as well as the scientific advice by Dr Leandro Fontoura, Dr Alda Massinga, Dr Rafael Massinga, Angela Manjichi, Dr Rodrigo Medeiros and Dr Samuel Quive were key for this study. It has been great to share this unique experience with them. Additionally, we would like to thank the staff of the *Universidade Eduardo Mondlane* (UEM), especially Dr Elena Colonna, for providing facilities for our workshop and the final presentation in Maputo City.

Furthermore, we want to thank Vanessa Eidt and Jens Dorn, staff members of KfW, who initiated this research and accompanied it during the different stages. Thank you for your constructive support and cooperation.

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Many thanks from all team (from left to right):
Anita Demuth, Xavier Costa, Laura Köster, Matthias Schmidt, Regina Pöhlmann, Clemente Zivale, Abel Bambo (Assistant), Jakob Bihlmayer-Waldmann, Michaela Armando, Osvaldo Mateus, Dr Abdul Ilal (missing: Mariana Mora, Luciana Zanotto, Dr Alda Massinga)

Photo: ISPM student

Executive summary

The purpose of this study is to identify financing gaps along the Value Chains (VCs) of perennial fruit crops in Mozambique and to developed useful recommendations on how to bridge these financing gaps. The commissioning agency, the *Kreditanstalt für Wiederaufbau* (*KfW Entwicklungsbank*), and its partners seek to develop adequate financial products and services for actors of perennial fruit crops VCs in the country.

Agriculture is one of the main economic pillars in Mozambique employing approximately 80 % of the workforce and accounting for 80 % of family sector income. However, the agricultural sector contributes only 21 % to the GDP. Looking at the sector's performance as a whole, agricultural production has increased in the recent years (4.6 % growth in production in 2014), however land and labour productivity in agriculture have stagnated or declined over time. This fact reflects the low productivity of Mozambique's agricultural sector, which is based on small-scale farms. These produce the main share of the agricultural output and constitute 95 % of the agricultural businesses in Mozambique. A professionalization of the agricultural businesses is key to unlocking the potential of Mozambique's agricultural sector for promoting economic development, especially with regards to reducing rural poverty.

Manica and Sofala provinces, located at the centre of the country, offer a great potential for the production of perennial fruit crops for both domestic and external markets. Furthermore, the provinces' geographic location creates a window of opportunity for Mozambique's farms to export ripe tropical fruit crops to external markets two weeks earlier than its main competitors South Africa and Madagascar. Being able to serve these markets implies the possibility for Mozambican farms to sell the fruit crops at a price at which they are able to make a reasonable profit. Due to these competitive advantages, the basic assumptions of the study was that enhancing high quality fruit production and developing the Value Chains (VCs) of perennial fruit crops can generate substantial earnings as well as employment and hence contribute to poverty alleviation in Mozambique.

However, the production of high quality perennial fruit crops requires high investments. But while the costs for inputs like seedlings and irrigation have to be met upfront, it takes years until the trees bear first fruits and generate income. It is difficult for small-scale producers with low productivity to save money for such investments. However, taking a credit for the investment as a small-scale producer in a remote area is also a challenge as the banks frequently lack rural branches,

have high requirements for borrowers, and charge high interest rates. Correspondingly, one of the fundamental hypotheses of this study was the existence of a gap of adequate financing of perennial fruit crop VCs.

Theoretical approach and research design

To identify the financing gaps along the value chains of perennial fruit crops, both the current status of supply of perennial fruit crop VCs with financial products and services as well as the current need of them within the VCs were investigated.

On the demand side of financing, this study contains a partial VC analysis of three perennial fruit crops: mango, lychee and citrus crops, examining the financing needs of the different actors within the VCs, but also the linkages between the actors as well as the potentials and challenges within the VCs. A special focus of the study is the production of the VCs and the financing needs of small and medium scale producers of perennial fruit crops.

On the supply side of financing, the study examines a) financing products of formal and informal financing providers, b) the perception of formal financing providers about the agricultural sector, and c) perceived challenges regarding financing the agricultural sector.

Matching the demand and supply side shows which financing needs of VC actors are addressed by formal and informal financing providers, and where financing gaps exist. To close them and to strengthen the VCs of perennial fruit crops, the study contains several recommendations for financial and technical assistance.

Quantitative and qualitative methods have been applied. The heart of the research was a three month field stay in Mozambique during which we conducted a) 61 semi-structured interviews with actors of the perennial fruit crop VCs, financial experts, association representatives, and donors, b) a survey with nine formal financing institutions at their headquarters in Maputo and c) a survey with 48 producers in the province of Manica. The results from the field research were also combined with findings from the literature.

Results

Value chain analysis

- The competitiveness of the three fruit crops examined (mango, citrus crops and lychee) is limited by various inefficiencies impacting most resource-poor

producers. Low yields, considerable post-harvest losses, and low quality fruit crops ensue from both the lack of inputs (mainly irrigation and seedlings), as well as inadequate production and handling practices. As a consequence, particularly resource-poor small-scale farms have problems to access the international and domestic markets for fresh fruits and sell their fruits mainly at local markets. Due to the high production of low quality mango, the prices at local markets are low. Furthermore, there are hardly any opportunities for producers to sell the fruit crops for processing. The development of a processing sector is impacted by difficulties within the supply chain (e.g. the need to import most packing material) as well as deficits in the infrastructure inadequate quantity and quality of the fruits as inputs. This calls for interventions that are targeted to increase fruit production and improve the fruit quality, to capture profitable markets and to enhance entire value chains of perennial fruit crops in terms of profitability and linkages among the actors, with particular emphasis on emerging farms.

Focusing on the production

- The average age of the head of the surveyed farms was 52 years and only 25 % were women. Elderly farmers tend to have difficulties to receive a loan from the commercial banks.
- On average just 40 % of the surveyed farms possess *Direito de Uso e Aproveitamento da Terra* (DUAT), i.e. official right to use the land. The percentage of registered farms is even lower with 28 %.
- Financing needs of farms:
  - → Financing to hire seasonal labour during harvest
  - → Short/medium term financing for inputs and quality seedlings in small quantities to produce quality fruit crops
  - → Financing to formalize the farm status (DUAT and NUIT)
  - → Financing to mitigate the risks of crop failure through droughts, theft, diseases, and uncontrolled fires (e.g. agricultural insurance, construction of a fire barrier) for small-scale emerging, medium- and medium-scale emerging farms
- Technical needs of farms:
  - → Improved knowledge on the appropriate use of fertilizers and irrigation systems as well as on the treatment of seedlings are required by small- and medium-scale farms

→ Improved information on different marketing and financing options especially for medium-scale farms

→ Improved management skills for small- and medium-scale farms

Financing in Mozambique

- Many families with a small-scale farm participate in Accumulating Savings and Credit Associations (ASCAs), that promote savings and sometimes give microcredits.
- Loans from informal money lenders, e.g. family members, are not common in the case of agricultural financing in Mozambique.

Commercial banks

- The share of agriculture in the portfolios of the banks we surveyed varied significantly between 20 % (BTM) and less than 1 % (Moza Banco), providing credits with an interest rate of 15-30 %.
- One of the major challenges for formal FIs to offer products and services for the agricultural sector lies in the direct costs to expand their business in rural areas due to the low economies of scale, the high operating costs (e.g. electricity, security, etc.) and a poor infrastructure in rural areas. Furthermore, monitoring the agricultural portfolio (e.g. on-farm visits) is very costly.
- None of the banks, with the exception of BTM, is targeting small and medium sized producers with their products. BTM is gradually upscaling to higher segments, with the result that only 10 % of the borrowers in their portfolio are small enterprises.
- A variety of other factors make it difficult for the FIs to finance small and medium agribusinesses, especially those active in production:

  → Climate and weather risks and lacking professionalism. Most small and medium-scale farmers do not irrigate their land. This restricts a) their ability to produce high quality crops and b) their resilience to weather risks.

  → Most farms do not fulfil the requirements of commercial banks in terms of formalization and management. They are not able to present business plans, financial records, or official documents like a DUAT or a NUIT.

- To mitigate risks related to agricultural production and to cover the operating costs, financial institutions offer their financial products at high interest rates and only accept clients who are able to present collateral, such as bank guaran-

tees, immovable assets, income from other economic activities, etc. Most small and medium farms are not able to provide such collateral.

Microfinancing Institutions (MFIs)

- MFIs are more experienced in working with low-income segments. They accept other collateral, e.g. animals, movable assets and household goods. Furthermore, MFIs do require just a low degree of formalization.

Government of Mozambique (GoM) and international donor initiatives

- The Government of Mozambique has installed a variety of initiatives to enhance financing the agricultural sector – often with donor support. Donor-funded credit lines and guarantee facilities have set incentives for commercial banks to expand their agricultural portfolio but so far they have not resulted in long-term or sustained growth with much outreach.

Conclusions

- Due to the different features (e.g. level of formalization, collaterals, and management skills) of farms, we came to the conclusion that one financing mechanism does not fit all agricultural businesses within VCs of perennial fruit crops in Mozambique.
- Farms face several challenges when trying to access the financing they need:
  - → The lack of formalization of farms implies that the majority do not meet the requirements of commercial banks or other entities, e.g. NGOs for financing products and services.
  - → Most farms do not have the collateral required by commercial banks for a credit application.
- As MFIs are experienced with low-income segments, have less strict requirements regarding the formalization, and accept alternative collateral, they have the potential to operate as an alternative financier for small and small-emerging farms.
- As the heads of the surveyed farms were on average more than 52 years old, there is a need to respond to the difficulties of elderly farmers to receive a loan and also to offer young farmers, and in particular young women a promising future in the agricultural sector.
- The majority of FI representatives view the Mozambican agricultural sector as highly risky. Thus, financial products are needed with a development focus.

- Although donor-funded credit lines and guarantee facilities have not resulted in long-term or sustained growth with much outreach, these instruments are encouraging the FIs to invest in the agricultural sector and, to a certain extent, to persevere even after initial challenges.

Main recommendations

- Establishing a Credit Line for Agricultural Value Chain Development that can address financing needs of medium-scale emerging farm businesses and other VC actors (e.g. processing, marketing, trading, etc.) by offering long-term lending. The credit line should target VC actors that could act as change agents. The credits will be distributed by commercial banks. The volume of the credits ranges from USD 30,000 up to USD 2 million. They serve to finance investments in irrigation, processing units, packing houses, or projects fostering different types of AVCF mechanisms (e.g. lead firm financing through block farming, contract farming, etc.).
- Starting an Agricultural Microfinance Programme that fosters financial sector development in rural areas and address the needs of micro, small and medium enterprises (MSMEs). The objective of this programme is to embed a direct financing facility into a system of technical assistance to both the agricultural and the financial sector. It consists of three pillars:
  - → Expanding MFI branches in rural areas and services to agricultural actors through financial and technical assistance
  - → Credit line for small agricultural VC actors, mainly to finance labour and other working capital needs, but possibly also for small assets and the formalization of the farm (for receiving an ID, NUIT, and DUAT). The recommended average loan value for individual producers for investments and for on-going production costs is from USD 100 to USD 1,500 for a term of four to eight months.
  - → Technical assistance for producers with focus on perennial fruit production and management skills (e.g. training in bookkeeping, financial literacy, and agricultural techniques).
- Supporting a Finance-for-irrigation programme that seeks to help small-scale farms to upgrade to the next level by providing them means for improving their irrigation systems. Additionally in the medium term, it prepares small emerging producers for future interaction with formal FIs. The programme consists of two components:

→ Enhancing investments in water infrastructure, including canal and weir construction or flood protection dykes.

→ Matching-grants for individual emerging small-scale producers to finance irrigation systems. 70 % of the financing is provided in the form of a grant and 30 % put up by the producers themselves, possibly with the help of loans provided by partnering commercial banks.

Further recommendations

- Promoting the establishment of insurance products and services for small and medium farmers

  → The intervention aims to improve the conditions for the provision of insurances for small and medium producers by supporting governmental institutions, private insurance providers, and financing providers. The following products should be envisaged: a) weather-index based micro-insurance (cost-effective, targeting micro and small businesses); b) micro life insurance for farmers; c) bundles of insurance and loan.

- Spreading information on agricultural financing

  → Collecting and delivering information about financial products to farmers (e.g. through a database)

  → Advising the farmers on adequate financing providers including their financial products and services for their farming business

- Support for young farmers

  → Educational institutions shall be supported to complement their educational programmes by technical knowledge on producing perennial fruit crops as well as management skills.

  → Young farmers shall be linked to banks or the private sector to get access to financing, to land and inputs for production and they shall receive financial literacy training (incubation and acceleration programmes).

  → Advice for banks and the private sector on how to shape financial products to make them attractive for young farmers.

- Support the use of mobile finance and e-transaction platforms to reduce the costs of providing financial products and services in rural areas, boosting financial inclusion, particularly of small-scale farmers.

- Explore further opportunities to implement and improve AVCF mechanisms that can facilitate farmers' access to inputs, technology and knowledge, by promoting lead firms in VCs
- Consider other financing opportunities such as the Clean Development Mechanism (CDM) that can provide funding for climate-smart agriculture.

Zusammenfassung

Das Ziel dieser Studie ist die Identifizierung von Finanzierungslücken entlang der Wertschöpfungsketten (WSK) von Obstdauerkulturen in Mosambik. Aufbauend darauf sollen Empfehlungen ausgesprochen werden, wie diese Lücken geschlossen werden können. Die KfW Entwicklungsbank, als Auftraggeber dieser Studie, möchte in Zukunft in Zusammenarbeit mit ihren Partnern adäquate Finanzprodukte und -dienstleistungen entwickeln, angepasst an die Bedürfnisse der WSK-Akteure im Land.

Die Landwirtschaft ist eines der wichtigsten ökonomischen Standbeine Mosambiks. 80 % der Beschäftigten können diesem Sektor zugerechnet werden, so dass ein großer Teil der Bevölkerung von der ladwirtschaftlichen Produktion abhängig ist. Allerdings trägt die Landwirtschaft nur rund 21 % zum Bruttoinlandsprodukt des Landes bei. Trotz steigender Wachstumsraten in der landwirtschaftlichen Produktion in den letzten Jahren (2014: 4,6 % Wachstum) zeichnete sich eine Stagnation bzw. eine Abnahme der Arbeitsproduktivität und der effizienten Landnutzung ab. Denn nach wie vor wird ein Großteil der landwirtschaftlichen Güter von Kleinbäuerinnen und -bauern produziert, die über keine technischen Hilfsmittel verfügen. Um das wirtschaftliche Potenzial des landwirtschaftlichen Sektors in Mosambik zu nutzen, ist es notwendig die landwirtschaftlichen Betriebe zu professionalisieren. Dies kann langfristig zu ökonomischem Wachstum und folglich zu einer Minderung der Armut im ländlichen Raum beitragen.

In den im Zentrum des Landes gelegenen Provinzen Manica und Sofala herrschen gute Bedingungen für den Anbau von Obstdauerkulturen, die sowohl für den Binnen- als auf für den Exportmarkt ein großes Potenzial bieten. Dank der geographischen Lage und der klimatischen Bedingungen können die regionalen Produzenten ihre tropischen Früchte zwei Wochen vor der Konkurrenz aus den Nachbarländern, insbesondere Südafrika und Madagaskar, auf den Exportmarkt bringen. Durch diesen Wettbewerbsvorteil haben mosambikanische Produzenten die Chance, ihre Produkte zu einem höheren Preis zu verkaufen und damit attraktive Profite zu erzielen. Basierend auf dieser Annahme verfolgt diese Studie den Ansatz, dass durch die Förderung von qualitativ hochwertigen Obstdauerkulturen und der Weiterentwicklung dieser WSKs eine substanzielle Einkommenssteigerung erzielt und folglich einen Beitrag zur Armutsminderung in Mosambik geleistet werden kann.

Um jedoch Früchte in einer hohen Qualität zu produzieren, sind hohe Investitionen im Vorfeld nötig. Ein großes Problem dabei ist, dass die Kosten für landwirt-

schaftliche Inputs, wie beispielsweise Setzlinge und Bewässerung bereits im Anfangsstadium der Produktion anfallen. Bis aber die Bäume erste Früchte tragen, die zum Verkauf angeboten werden können, vergehen einige Jahre. Da erst dann sich die getätigten Investitionen amortisieren, stellt der Anbau von Obstdauerkulturen eine große finanzielle Herausforderung vor allem für Kleinbäuerinnen und -bauern dar. Diese sind oft nicht in der Lage größere Summen im Voraus zu sparen, um solche Investitionen zu stemmen. Zusätzlich ist der Zugang zum Finanzsektor und damit zu Krediten für einen Großteil der Produzenten und andere WSK-Akteure sehr eingeschränkt. Dies hat eine Vielzahl von Gründen, unter anderem die schlechte Infrastruktur der Banken in ländlichen Räumen, die hohen Anforderungen, die an Kreditnehmer gestellt werden und zusätzlich hohe Zinsen für Kredite. Daher liegt dieser Studie die grundlegende Hypothese zu Grunde, dass entlang der WSKs von Obstdauerkulturen Finanzierungslücken existieren.

Theoretischer Rahmen und Forschungsdesign

Um die oben genannten Finanzierungslücken zu identifizieren wurde sowohl der *status quo* der Angebotsseite von Finanzprodukten und -dienstleistungen für die WSKs von Obstdauerkulturen als auch die Nachfrageseite dieser Produkte und Dienstleistungen in dieser Studie untersucht.

Um die Nachfrageseite zu beleuchten wurde eine partielle WSK Analyse von insgesamt drei Obstdauerkulturen vorgenommen: Mango, Litschi und Zitrusfrüchten. Dabei wurde einerseits der Finanzierungsbedarf der einzelnen WSK Akteure ermittelt und andererseits die Vernetzung der Akteure innerhalb der verschiedenen WSKs betrachtet. Zusätzlich wurden die Potenziale und Herausforderungen in den WSKs untersucht. Der Fokus lag bei dieser Studie auf der Produktionsseite, insbesondere auf dem Finanzierungsbedarf von kleinen und mittleren Produzenten.

Auf der Angebotsseite konzentrierte sich die Studie auf a) Finanzprodukte von formellen aber auch informellen Finanzanbietern, b) die Risikowahrnehmung der Anbieter bezüglich des landwirtschaftlichen Sektors und dessen Finanzierung und c) die wahrgenommenen Herausforderungen, die mit der Finanzierung des landwirtschaftlichen Sektors einhergehen.

Das Matching von Angebots- und Nachfrageseite verdeutlicht somit, welcher Finanzierungsbedarf von welchen WSK Akteuren durch formelle und informelle Finanzanbieter bereits gedeckt wird, und wo noch Finanzierungslücken bestehen. Um die Interaktion zwischen den beiden Seiten und damit zugleich die WSK von

Obstdauerkulturen in Mosambik zu stärken, werden Empfehlungen für die zukünftige Finanzielle, aber auch Technische Zusammenarbeit ausgesprochen.

Für diese Studie wurden sowohl quantitative als auch qualitative Forschungsmethoden genutzt. Das Herzstück dieser Forschung war ein dreimonatiger Feldaufenthalt in Mosambik, in dessen Rahmen a) 61 Leitfadeninterviews mit WSK-Akteuren, Finanzexperten, Vertretern von unterschiedlichen Verbänden sowie Gebern, b) eine Umfrage in den Zentralen von neun formellen Finanzinstitutionen, und c) eine Umfrage mit insgesamt 48 Produzenten in der Provinz von Manica durchgeführt wurde. Die Ergebnisse der Feldforschung wurden mit Erkenntnissen aus einer ausführlichen Literaturrecherche untermauert.

Ergebnisse

WSK Analyse

- Zahlreiche Schwächen bei der Produktion der drei untersuchten Dauerobstkulturen (Mango, Litschi und Zitrusfrüchten) erschweren es vor allem für ressourcenarme Produzenten wettbewerbsfähige Früchte zu produzieren. Das Fehlen wichtiger Inputs für die Produktion (hauptsächlich Bewässerung und Sämlinge) sowie inadäquate Produktions- und Transporttechniken führen zu einer niedrigen Obstqualität und zu Verlusten entlang der WSK. Aus diesem Grund haben besonders ressourcenarme Kleinbäuerinnen und -bauern Probleme sich einen Zugang zu nationalen und internationalen Märkten zu erschließen. Somit verkaufen sie ihre Früchte auf lokalen Märkten. Allerdings sind auf lokalen Märkten die Verkaufspreise für in Mosambik weit verbreite Früchte sehr niedrig, da es dort ein Überangebot an qualitativ schlechtem Obst gibt. Eine Weiterverarbeitung der Früchte ist bisher nicht möglich. Unter anderem sind hohe Importkosten für Verpackungsmaterial, fehlende Infrastruktur im ländlichen Raum sowie das fehlende Volumen einer bestimmten Qualität von Früchten verantwortlich für die fehlende Entwicklung einer verarbeitenden Industrie. Für eine Weiterentwicklung der WSK (z.B. in Form von Erhöhung der Profitabilität, Wettbewerbsfähigkeit und Stärkung der Verbindungen zwischen den Akteuren) sind jedoch Investitionen in die Produktion hochwertiger Früchte nötig.

Sicht auf die Produktion

- Das Durchschnittsalter der Haushaltsvorstände der untersuchten Betriebe liegt bei 52 Jahren. Nur 25 % der befragten Haushaltsvorstände waren Frauen. Das hohe Alter der Produzenten ist ein Aspekt, der sich auf die Bewilligung von Krediten durch kommerziellen Banken negativ auswirkt.

- Im Durchschnitt besitzen nur 40 % der untersuchten Betriebe ein offizielles Dokument "Direito de Uso e Aproveitamento da Terra" (DUAT) zum Nachweis ihres Landnutzungsrechts. Die Anzahl der Betriebe, welche offiziell registriert sind, ist mit 28 % sogar noch niedriger.
- Finanzieller Bedarf von landwirtschaftlichen Betrieben
  - → Finanzierung von saisonaler Arbeitskraft während der Ernte
  - → Kurz- und langfristige Finanzierung von qualitativ hochwertigen Sämlingen
  - → Finanzierung des Erwerbs von offiziellen Dokumenten (DUAT und NUIT) für die Formalisierung der Betriebe
  - → Finanzierung von Investitionen kleiner und mittlerer Betrieb zur Vermeidung von Ernteausfällen durch Trockenheit, Diebstahl, Krankheiten und unkontrollierten Feuern.
- Technischer Bedarf von landwirtschaftlichen Betrieben
  - → Informationen über die angemessene Nutzung von Düngemitteln, Bewässerungssystemen sowie über die Pflege von Jungpflanzen für mittelständische - und Kleinbauern.
  - → Verbesserter Informationszugang zu Marketing- und Finanzierungsoptionen für mittelständische Unternehmen.

Agrarfinanzierung in Mosambik

- Viele Familien mit kleinen landwirtschaftlichen Betrieben sind Mitglieder in Spar- und Kreditgruppen (Accumulating Savings and Credit Associations, ASCAs). Diese unterstützen die Mitglieder beim Sparen und nutzen die Einlagen um Mikrokredite zu vergeben.
- Kredite von informellen Geldgebern, wie beispielsweise Familienmitgliedern spielen nur eine untergeordnete Rolle in Mosambik.

Kommerzielle Banken

- Der Anteil von landwirtschaftlichen Krediten in den Portfolios der befragten Banken variiert sehr stark zwischen 20 % (Banco Terra Moçambique) und weniger als 1 % (Moza Banco). Die Zinsen für einen Agrarkredit liegen zwischen 15 % und 30 %.
- Eine der größten Herausforderungen der Agrarfinanzierung für die formellen Finanzinstitutionen (FIs) sind die hohen Kosten um ihre Infrastruktur in ländlichen Gebieten auszubauen bzw. zu erhalten. Vor allem die geringen Skalenef-

fekte, die hohen Betriebskosten (z.B. Elektrizität, Sicherheit, Lohnkosten, usw.) und die mangelnde Infrastruktur machen es für die FIs unattraktiv in ländliche Gebiete zu expandieren. Zudem sind die Monitoringkosten für das Landwirtschaftsportfolio sehr hoch.

- Keine der befragten Banken, mit Ausnahme von Banco Terra Moçambique (BTM), bedient die Zielgruppe der kleinen und mittleren Produzenten. Doch auch BTM ist dabei das Geschäft auf höhere Segmente zu verlagern. Folglich sind auch bei BTM nur noch 10 % der Kreditnehmer kleinere landwirtschaftliche Betriebe.
- Eine Vielzahl von anderen Faktoren erschwert es den FIs kleine und mittlere landwirtschaftliche Betriebe und damit insbesondere Produzenten zu finanzieren:

  → Klima- und Wetterrisiken, sowie der Mangel an Professionalisierung der Betriebe sind große Hindernisse. Die Mehrheit der kleinen und mittleren Produzenten bewässert ihre Obstdauerkulturen nicht. Dadurch vermindert sich a) ihre Möglichkeit qualitativ hochwertige Kulturen anzubauen und b) ihre Resilienz gegenüber Wetterrisiken. In Folge steigt das Kreditausfallrisiko für die Banken.

  → Die Mehrheit der landwirtschaftlichen Betriebe in Mosambik erfüllen nicht die Voraussetzung der kommerziellen Banken in Hinblick auf ihre Formalisierung und ihr Management. Sie sind meist nicht in der Lage Businesspläne, Finanzbücher oder offizielle Dokumente wie z.B. verbriefte Landnutzungsrechte (DUAT) vorzulegen.
- Um die mit der Finanzierung von Produktionsbetrieben verbundenen Risiken abzuschwächen und ihre Betriebskosten zu decken, verlangen kommerzielle Banken sehr hohe Zinsen. Außerdem werden nur Kunden akzeptiert, die Sicherheiten wie Bankgarantien, unbewegliches Vermögen oder ein Einkommen aus einer anderen Beschäftigung vorweisen können. Fast keiner der kleinen und mittleren landwirtschaftlichen Betriebe kann solche Sicherheiten anbieten.

Mikrofinanz-Institutionen (MFIs)

- MFIs haben durch ihr Geschäftsmodell mehr Erfahrung in der Arbeit mit dem niedrigen Einkommenssektor. Sie akzeptieren andere Sicherheiten wie beispielsweise Tiere oder Haushaltsgüter. Außerdem werden kaum Ansprüche an den Formalisierungsgrad des Unternehmens gestellt.

Die mosambikanische Regierung und internationale Geber

- Die Regierung von Mosambik hat eine Vielzahl von Initiativen zur Förderung der Agrarfinanzierung ins Leben gerufen, oftmals mit Unterstützung von internationalen Gebern. Durch subventionierte Kreditlinien und Garantiefazilitäten sollen Anreize für die kommerziellen Banken geschaffen werden, um ihr landwirtschaftliches Portfolio zu erweitern. Bis jetzt ist die Reichweite dieser Programme allerdings noch sehr eingeschränkt. Dementsprechend konnte bisher noch kein substantielles Wachstum in der Agrarfinanzierung bewirkt werden.

Fazit

- Auf Grund der unterschiedlichen Charakteristika der landwirtschaftlichen Betriebe (z.B. Formalisierungsgrad, Sicherheiten für die Bank und den Fähigkeiten im Betriebsmanagement) zeigt sich, dass ein einziger Finanzierungsmechanismus für alle landwirtschaftlichen Betriebe nicht ausreichend ist.
- Landwirtschaftliche Betriebe sind mit mehreren Problemen konfrontiert, wenn sie eine Finanzierung beantragen:
  - → Die fehlende Formalisierung der landwirtschaftlichen Betriebe ist nicht vereinbar mit den Voraussetzungen von kommerziellen Banken oder anderen Organisationen, z.B. Nicht-Regierungsorganisationen (NROs) um Finanzierungsprodukte und -dienstleistungen zu erhalten.
  - → Die Mehrheit der Betriebe hat keine Sicherheiten vorzuweisen, welche von Banken anerkannt werden.
- MFIs haben das Potenzial kleine Betriebe zu finanzieren, weil sie Erfahrungen mit ländlichen Betrieben und niedrige Anforderungen im Bereich der Formalisierung und der Sicherheiten haben.
- Die Vergabe von Krediten an Betriebe, die von älteren Unternehmern geführt werden, muss erleichtert werden. Des Weiteren muss die Landwirtschaft für junge Menschen, vor allem junge Frauen, attraktiver gestaltet werden.
- Die Mehrzahl der Repräsentanten von FIs in Mosambik sieht den agrarwirtschaftlichen Sektor als stark risikobehaftet. Deshalb benötigt es finanzielle Instrumente mit Entwicklungsfokus.
- Geberfinanzierte Kreditlinien und Garantien führten bisher nicht zum gewünschten weitreichenden, langfristigen oder nachhaltigen Wachstum des landwirtschaftlichen Sektors. Sie sind aber dennoch geeignet, um Investitio-

nen der FIs in diesen Sektor zu fördern und sollten trotz anfänglicher Schwierigkeiten weiter verfolgt werden.

Zentrale Empfehlungen an die KfW

Kreditlinie zur Förderung von Agrarwertschöpfungsketten

- Mit Hilfe einer Kreditlinie soll der Finanzierungsbedarf von mittleren aufstrebenden Produktionsbetrieben und auch von anderen WSK-Akteuren (z.B. Verarbeitende Betriebe, Händler, Vermarkter, etc.) adressiert werden. Dazu sollen möglichst langfristige Kredite angeboten werden. Die Kreditlinie soll sich vor allem an mögliche „change agents" in den WSKs richten, also an solche Akteure, die das Potenzial haben eine Weiterentwicklung und Stärkung der WSKs voranzutreiben. Die Kreditlinie sollte über kommerzielle Banken angeboten werden. Die Höhe der vergebenen Kredite kann zwischen USD 30.000 und USD 2 Millionen liegen. Vorrangig sollten Investitionen in Bewässerung, Verarbeitung, Packhäuser oder Projekte mit einem Agricultural Value Chain Financing (AVCF) Mechanismus (z.B. Blockfarming oder Vertragslandwirtschaft) gefördert werden.

Landwirtschaftliches Mikrofinanzprogramm

- Durch dieses Programm soll die Entwicklung des Finanzsektors in ländlichen Gebieten gefördert werden. Die Zielgruppe sind kleinst, kleine und mittlere Betriebe. Das Ziel dieses Programms ist die Verbindung eines Finanzierungsmechanismus mit einem umfangreichen System von technischer Unterstützung, sowohl für den Landwirtschafts- als auch für den Finanzsektor. Das Programm besteht aus drei Säulen:

  → Aufbau neuer MFI-Filialen in ländlichen Gebieten und Ausweitung von Dienstleistungen für landwirtschaftliche Akteure durch technische und finanzielle Unterstützung.

  → Eine Kreditlinie für kleine WSK Akteure, hauptsächlich um Arbeitskräfte und andere Betriebsmittel zu finanzieren. Zusätzlich besteht auch die Möglichkeit, kleinere Vermögenswerte oder die Formalisierung des Betriebs (z.B. DUAT) zu finanzieren. Die empfohlene durchschnittliche Kreditsumme liegt zwischen USD 100 und USD 1.500 pro Kreditnehmer bei einer Laufzeit von vier bis acht Monaten.

  → Technische Unterstützung für die Produzenten mit Fokus auf dem adäquaten Anbau von Obstdauerkulturen und der Stärkung der Management-Fähigkeiten (z.B. Buchhaltung, finanzielle Bildung sowie Anbaumethoden).

Programm zur Finanzierung von Bewässerungssystemen

- Ziel dieses Programms ist es kleine Produktionsbetriebe „auf die nächste Stufe zu heben", indem verbesserte Bewässerungssysteme finanziert werden. Außerdem sollen die kleinen aufstrebenden Produzenten mittelfristig für die Zusammenarbeit mit den formellen FIs vorbereitet werden. Das Programm besteht aus zwei Komponenten:

  → Förderung von (öffentlichen) Investitionen in die Wasserinfrastruktur, wie beispielsweise zum Bau von Kanälen und Deichen.

  → Machting-grants für aufstrebende Produktionsbetriebe zur Finanzierung von Bewässerungssystemen. 70 % der Finanzierung wird in Form eines Zuschusses übernommen und die restlichen 30 % Produzent selber aufbringen. Dieser Anteil kann auch als Kredit von einer kommerziellen Bank gedeckt werden.

Weitere Empfehlungen

- Förderung von Versicherungsprodukten und -dienstleistungen für kleine und mittlere landwirtschaftliche Betriebe

  → Ziel dieser Intervention ist es, die Rahmenbedingungen für landwirtschaftliche Versicherungen zu verbessern. Dies sollte in Zusammenarbeit mit staatlichen Institutionen, der Versicherungswirtschaft und FIs umgesetzt werden. Folgende Produkte sollten in Betracht gezogen werden: a) Mikroversicherungen basierend auf Wetterindizes, b) Mikro-Lebensversicherungen für Produzenten und c) die Verbindung von Versicherungen und Krediten.

- Verbreitung von Informationen über Agrarfinanzierung

  → Sammeln, Aufbereiten und Verbreiten von Informationen zu Finanzierungsprodukten für landwirtschaftliche Betriebe (z.B. durch eine Datenbank).

  → Beratung der Produzenten hinsichtlich geeigneter Finanzierungsmöglichkeiten und -anbieter für ihren Betrieb.

- Förderung von jungen Bäuerinnen und Bauern

  → Ausbildungsbetriebe und Hochschulen sollten dabei unterstützt werden, technisches Wissen über Anbaumethoden von Obstdauerkulturen und Managementfähigkeiten in ihre Lehrpläne aufzunehmen.

  → Junge Bäuerinnen und Bauern sollen dabei unterstützt werden, mit dem Finanzsektor in Kontakt zu treten, um Zugang zu Finanzierung zu bekom-

men. Zusätzlich ist für sie eine fundierte finanzielle Bildung (z.B. durch Inkubatoren-Projekte) notwendig.

→ Beratung der Banken und des privaten Sektors, wie die Attraktivität ihrer Finanzprodukte für jüngere Produzenten erhöht werden kann.

- Förderung von *mobile finance* und *e-transaction* Plattformen um die finanzielle Inklusion von Kleinbäuerinnen und -bauern in ländlichen Gegenden zu stärken.
- Untersuchung von weiteren Möglichkeiten zum Ausbau von AVCF Mechanismen, um einen verbesserten Zugang zu landwirtschaftlichen Inputs, Technologien und Wissen für Produzenten zu gewährleisten.
- Berücksichtigung von anderen Finanzierungsmechanismen wie beispielsweise dem Clean Development Mechanismus (CDM), der zur Förderung von *climate-smart agriculture* dienen kann.

Table of contents

Foreword i
Acknowledgements ii
Executive summary iv
Zusammenfassung xii
Table of contents xxi
List of tables xxiv
List of figures xxv
Abbreviations xxvi

1 Study background and objectives 1

1.1 Background and contents of this report 1
1.2 Problem statement and purpose of the study 2
1.3 Aims of the study 3

2 Research approach and methodology 5

2.1 Research approach 5
2.2 Concepts and research questions to understand the demand side 8
2.2.1 Value Chain Approach 8
2.2.2 Farm categorization 9
2.3 Concepts and research questions to understand the supply side 12
2.3.1 Financing agriculture 13
2.3.2 New approaches for financing agriculture 14
2.4 Matching supply and demand 16
2.5 Considerations on impact of the future interventions 18

3 Context 21

3.1 Socio-economic panorama 21
3.2 Historic overview of strategies for developing the agricultural sector 22
3.3 Agricultural Growth Corridors 23

4 Agricultural finance in Mozambique 25

4.1 Overview on financing providers in Mozambique 25
4.2 Financial exclusion of the rural population and the agricultural sector 28
4.3 Provision of agricultural finance by commercial banks and microfinance institutions 31
4.3.1 Commercial banks 32
4.3.2 Microfinance institutions 33
4.4 Perceptions of risks and opportunities for financing agricultural value chains and producers 34
4.4.1 Perception of risks 35
4.4.2 Risk mitigation strategies 37
4.5 The role of the government and international donors 39
4.5.1 Sponsored credit lines 40
4.5.2 Guarantee facilities for banks 40
4.5.3 Technical assistance and guarantee facilities for agricultural lenders 41
4.5.4 Programmes to enhance financial inclusion and rural finance 42
4.6 Experiences with Agricultural Value Chain Financing in Mozambique 42
4.7 Challenges and potentials of agricultural finance in Mozambique 44
4.7.1 Challenges 44
4.7.2 Potentials 46

5 Value chains of perennial fruit crops in Manica Province 49

5.1 Perennial fruit crop production 49
5.2 Partial assessment of value chains of perennial fruit crops 50
5.2.1 Actors of the value chains 51
5.2.2 Potentials and challenges within the selected value chains 52
5.2.3 Perennial fruit crop production – a good deal for Mozambique? 60
5.3 Focussing on production 62
5.3.1 Relevant aspects for financing farms 62
5.3.2 Farmers and their links to the financial sector 64
5.4 Targeting the producers by farm type 66
5.5 Needs along the VCs 68

6 Main conclusions and recommendations 71

6.1 Financial assistance 72

6.1.1 Credit line for agricultural Value Chain development 72

6.1.2 Agricultural microfinance programme 75

6.1.3 Finance-for-irrigation programme 79

6.2 Technical assistance 82

6.2.1 Insurance products and services for small and medium farmers 82

6.2.2 Spreading information on agricultural financing 85

6.2.3 Support young people 86

6.3 Further ideas to support access to finance in rural areas 89

6.3.1 Support the use of mobile finance and e-transactions platforms solutions 89

6.3.2 Opportunities to implement AVCF 90

6.3.3 Considering other financing opportunities 90

Bibliography 93

Glossary 99

Annexes 102

Annex 1: Methodology 102

Annex 2: Brief summary of the case study of citrus Value Chain in Maputo Province 108

Annex 3: Mapping of credit lines, guarantee facilities and other investment vehicles promoting agricultural finance 111

Annex 4: Mapping the lychee, mango and citrus VCs 114

Annex 5: Detailed farm types 117

Annex 6: Farms' needs to improve production and productivity 119

Annex 7: Example calculations for credit lines 120

Annex 8: Expert interview questionnaires 122

Annex 9: Bank survey questionnaires (commercial banks and MFIs) 129

Annex 10: Farm survey questionnaire 140

List of tables

Table 1: Farm categories and number of farms in Mozambique 10

Table 2: Assumed range of farm types in Mozambique 11

Table 3: Elements of the supply of agriculture sector with financial services 14

Table 4: Structure of financial system (active institutions) 26

Table 5: Attractiveness of perennial fruit crops along the VC 61

Table 6: Farm types 67

Table 7: Needs of VC actors 68

Table 8: Different types of VC actors as potential target groups and suitable types of financing providers 71

Table 9: Threats and opportunities of the recommended credit line 75

Table 10: Threats and opportunities of the recommended microfinance programme 79

Table 11: Threats and opportunities of the recommended finance-for-irrigation programme 82

List of figures

Figure 1: System of objectives 3
Figure 2: Study approach 5
Figure 3: Geographic coverage areas....7
Figure 4: Schematic diagram of a value chain 9
Figure 5: Rural and Agricultural Finance 13
Figure 6: Framework for matching supply and demand 17
Figure 7: Prospective impact of the study (a new balance of agricultural finance) 18
Figure 8: Stakeholder map of agricultural finance in Mozambique 27
Figure 9: Overall lending of commercial banks 31
Figure 10: Attractiveness of investments into the agricultural sector 35
Figure 11: Risk perceptions of financial institutions 36
Figure 12: Problem analysis of the supply side 45
Figure 13: Fruit VCs in Mozambique 50
Figure 14: Use of irrigation system....53
Figure 15: Amount of yield sold (in %) 54
Figure 16: Pillars of the Agricultural Microfinance Programme 77
Figure 17: Methodological approach 102
Figure 18: Research units....103

Abbreviations

ADEM	Agência de Desenvolvimento Económico da Província de Manica (Agency for Economic Development of Manica Province)
ADIPSA	Apoio ao Desenvolvimento de Iniciativas no Sector Privado (Development Assistance for Private Sector Agriculture Initiative)
AgDevCo	African Agricultural Development Company
ASCAs	Accumulated Savings and Credit Associations (Associações de Poupanças Acumuladas e Crédito)
AVCF	Agricultural Value Chain Finance (Financiamento de Cadeias de Valor Agrícolas)
BAGC	Beira Agricultural Growth Corridor (Corredor de Crescimento Agrícola da Beira)
BCI	Banco Comercial e de Investimentos
BIM	Banco Internacional de Moçambique, Millennium BIM
BOM	Banco Oportunidade de Moçambique
BM	Banco de Moçambique
BTM	Banco Terra Moçambique
CCOM	Caixa Comunitária de Microfinanças (Community Saving Institution for Microfinance)
CDM	Corridor de Desenvolvimento de Maputo (Maputo Development Corridor)
CDN	Corridor de Desenvolvimento de Nacala (Nacala Development Corridor)
CEPAGRI	Centro de Promoção da Agricultura (Centre for Promotion of Agriculture)
CIM	German Centre for International Migration and Development
CPL	Cooperativa de Poupança e Crédito dos Produtores do Limpopo (Cooperative for Saving and Credit of the Producers of Limpopo)
DUAT	Direito de Uso e Aproveitamento da Terra (Right to Use and Benefit from Land)
DFID	Department for International Development (United Kingdom)
DPASA	Direcção Provincial de Agricultura e Segurança Alimentar (Province Directorate of Agriculture and Food Security)
FAO	Food and Agriculture Organisation of the United Nations

FDA	Fundo de Desenvolvimento Agrícola (Agrarian Development Fund)
FDD	Fundo de Desenvolvimento Distrital (District Development Fund)
FDIs	Foreign Direct Investments
FDM	Fundação de Desenvolvimento da Mulher (Women Development Foundation / Group Guaranteed Lending and Savings)
FI	Financial Institution (Instituição Financeira)
FSD	Financial Sector Deepening programme
GAPI	Sociedade de Gestão e Financiamento para a Promoção de Pequenos Projectos de Investimentos, SA (Management and Funding Company for Promotion of Small Investment Projects)
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoM	Governo de Moçambique (Government of Mozambique)
IFAD	International Fund for Agricultural Development
IIAM	Instituto de Investigação Agrária de Moçambique (Institute of Agrarian Research of Mozambique)
INNOQ	Instituto Nacional de Normalização e Qualidade (National Institute of Standards and Quality)
ISPM	Instituto Superior Politécnico de Manica (Mozambique)
KfW	Kreditanstalt für Wiederaufbau
MASA	Ministério da Agricultura e Segurança Alimentar (Ministry of Agriculture and Food Security)
MBFM	Micro Bank Fides Mozambique
MFI	Microfinance Institution (Instituição de Micro-Finanças)
MINAG	Ministério da Agricultura (former acronym of the Ministry of Agriculture)
MSMEs	Micro, Small and Medium Enterprises
MZN	Metical (plural: meticais), the currency of Mozambique
NGO	Non-governmental organization
NUIT	Número Único de Identificação Tributária (Taxpayer Single Number)
PAPA	Plano de Acção para a Produção de Alimentos (Action Plan for Food Production)
PARP	Plano de Acção para a Redução da Pobreza (Action Plan for the Reduction of Poverty)

PARPA	Plano de Acção para a Redução da Pobreza (Action Plan for the Reduction of Absolute Poverty)
PPP	Public Private Partnership
PRESP	Programa de Relançamento do Sector Privado (Programme for Re-launching of the Private Sector)
PROIRRI	Projecto de Desenvolvimento de Irrigação Sustentável (Sustainable Irrigation Development Project)
RFSP	Rural Finance Support Programme (Programa de Apoio às Finanças Rurais)
SLE	Seminar für Ländliche Entwicklung (Centre for Rural Development)
SMEs	Small and medium-sized enterprises
ToR	Terms of Reference
UEM	Universidade Eduardo Mondlane (Mozambique)
UFRRJ	Universidade Federal Rural do Rio de Janeiro (Brasil)
UNAC	União Nacional dos Camponeses (National Farmers' Association)
USAID	United States Agency for International Development
USD	US Dollars
VC	Value Chain
VCA	Value Chain Analysis

1 Study background and objectives

1.1 Background and contents of this report

When in Europe the winter and in South Africa the summer season starts, the trees in Mozambican gardens are already rich in fruits. Due to Mozambique's geographic and agro-climatic characteristics, the country has the potential to produce and export high-value fruits counter-seasonally (World Bank, 2006: 123) as well as to produce higher value added and reasonably priced products by fruit processing in the country. Unlocking this potential could increase the income of the rural population and reduce poverty in Mozambique.

Poverty is still a major problem in Mozambique, despite the fact that it has been among the fastest growing economies in Sub-Saharan Africa over the last 20 years, with an average annual real Gross Domestic Product (GDP) growth rate of 7.4 % (IMF, 2014: 7). Almost 60 % of the population lives below the poverty line. The majority of the population resides in rural areas and the agricultural sector accounts for approximately 80 % of employment in Mozambique. Smallholdings account for 95 % of all agricultural businesses. The agricultural sector in Mozambique is characterized by low productivity, and its direct contribution to the GDP is only 21 %.

Several challenges limit the development of the agricultural sector in Mozambique. Among these are the poorly developed infrastructure, high transport costs, the lack of extension services and risk insurance, as well as the lack of access to credit and to productivity-enhancing inputs and technologies (UNDP, 2012: 17). The lack of finance is in particular a bottleneck in fruit tree production, because high initial investments amortize only after several years. Enhancing access to adequate financial products and services for small- and medium-scale producers could have a remarkable positive impact on their livelihoods. Moreover, if marketing channels are built up, e.g. processing facilities built with the help of agricultural finance, the small and medium producers would have very good possibilities to sell their produce (high-value fruits) on domestic and external markets. In turn, higher incomes of the rural population (farmers, traders, etc.) and increased food security would help to reduce rural poverty.

In this context, the *Kreditanstalt für Wiederaufbau* (KfW) commissioned the *Seminar für Ländliche Entwicklung* (SLE) of the Humboldt-Universität zu Berlin, Germany, to conduct a study aimed at identifying the financing gaps along the value chains (VCs) of perennial fruit crops in Mozambique. Furthermore, the KfW

requested the study team to develop recommendations on how to bridge these financing gaps. The study aims to contribute to the formulation of adequate interventions of financial cooperation in order to increase the production of perennial fruit crops, to develop the corresponding whole value chains and to fight poverty in rural areas of the country.

The SLE conducted the study in cooperation with the *Instituto Superior Politécnico de Manica* (ISPM) and the *Universidade Federal Rural do Rio de Janeiro* (UFRRJ). Further support was given by the *Universidade Eduardo Mondlane* (UEM) in Maputo City. The implementation is described in chapter 2 (research approach and methodology). In chapter 3 the country context is outlined.

In chapter 4 and chapter 5 the main findings from the field research are presented. Chapter 4 focuses on the supply of financing for the agricultural sector in Mozambique. The various financing providers and their agricultural portfolio are presented. Furthermore, challenges of financing the agricultural sector and future potentials are discussed. Chapter 5 focuses on the value chains of the perennial fruits crops, their challenges and particularly on the demand for financing of the respective value chain actors. After having assessed the supply and the demand, recommendations on financial products to close the financing gaps are given in chapter 6, with further recommendations for technical assistance in the area of agricultural finance and agricultural value chain development.

1.2 Problem statement and purpose of the study

Regardless of all efforts, the agricultural sector in Mozambique still faces a variety of obstacles like poor infrastructure, low levels of market integration and extreme weather events. One of the major bottlenecks is the lack of systematic and prudent financing of the sector which is in urgent need of capital investments to increase its productivity. Due to irregular cash flows, price fluctuations and market risks, formal financial institutions are reluctant to finance agricultural businesses.

Furthermore, the 18 registered commercial banks in Mozambique are concentrated in urban areas and thus frequently exclude the rural population (69 % of the total population) from financial services like saving accounts as well as loans, credits and other forms of investment. The 5 % of the commercial bank lending going to agricultural sector (BM, 2013: 9) is characterized by high transaction costs and high interest rates.

This disparity between demand for and supply of financing products and services leads to a lack of finance for the producers. Thus, it is one of the major ob-

stacles for small and medium farms to deliver to the market in terms of quantity and quality, especially for products like perennial fruit crops, which require high financial inputs until harvesting, but only yield profits on the long term.

1.3 Aims of the study

In cooperation with its partners, the KfW wants to initiate financial interventions along the value chains of perennial fruit crops aiming to establish an increased supply of adequate financing to the producers and other value chain actors in rural Mozambique.

The remit of the study team is to identify financing gaps along the value chains of perennial fruit crops and to recommend how these gaps could be addressed adequately. After a comprehensive examination of the terms of reference, a system of objectives has been developed (see Figure 1).

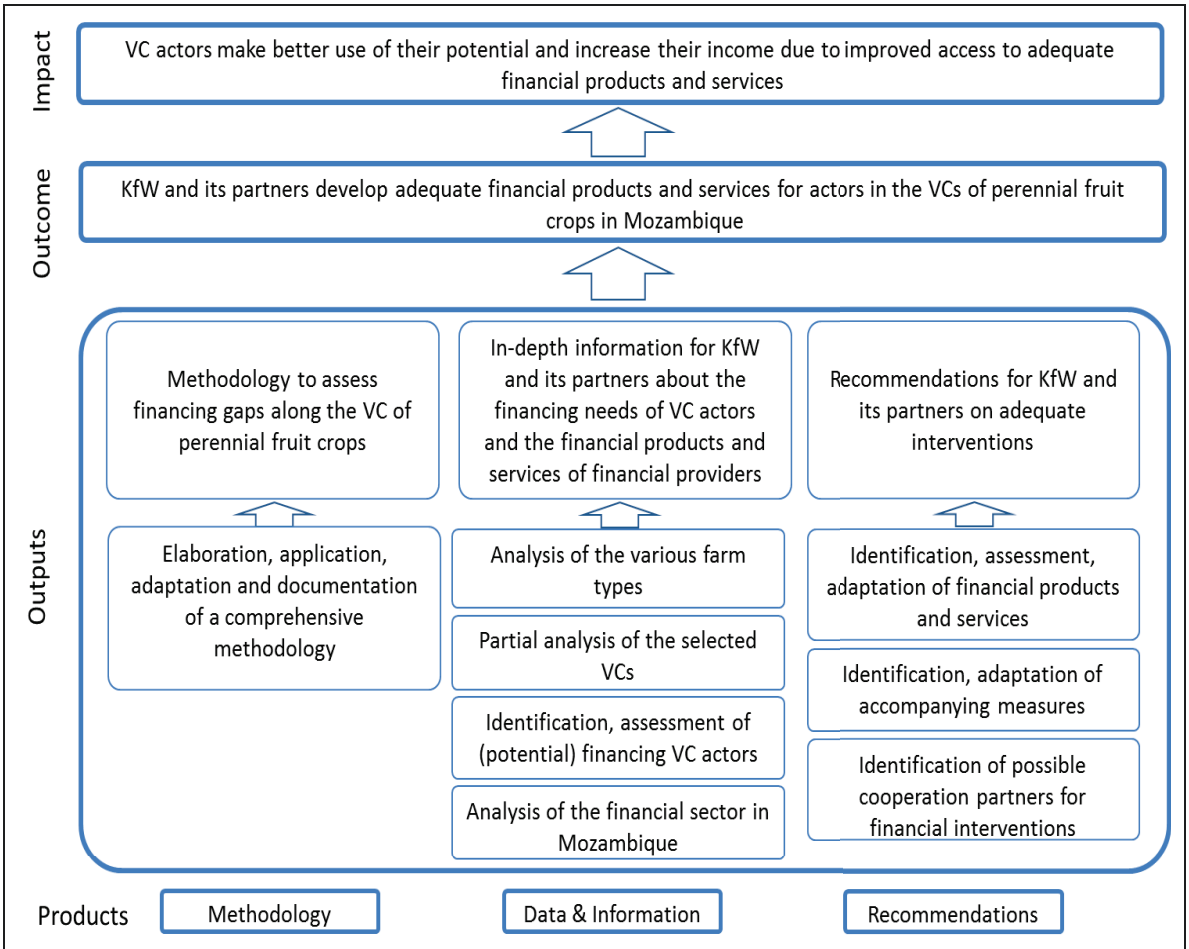

Figure 1: System of objectives

Source: Own illustration

2 Research approach and methodology

2.1 Research approach

To be able to assess the financing gaps along the value chains and to give adequate recommendations, the study team developed a comprehensive methodological approach.[1] The research approach (see Figure 2) took into account: the supply of financial products and services (blue) and the demand for these (yellow) as well as the country-specific context (green).

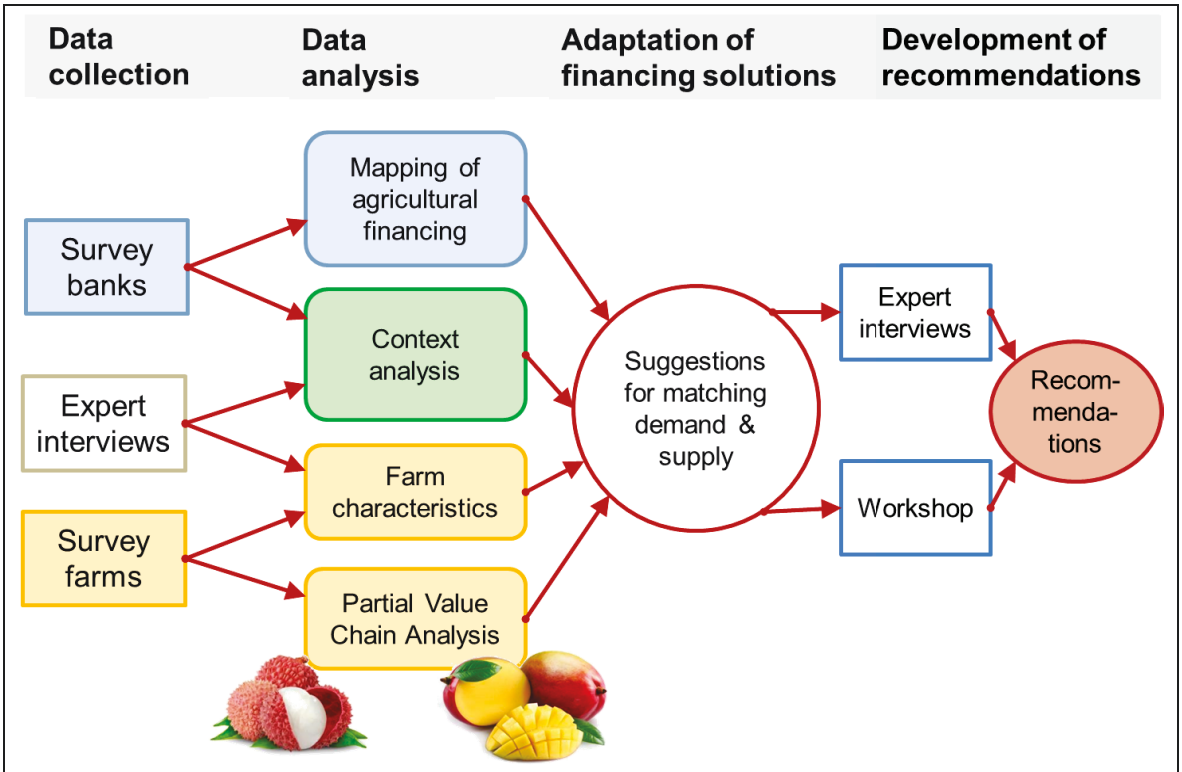

Figure 2: Study approach

Source: Own illustration

Firstly, the financial products and services on offer for the agricultural sector were examined, as well as all relevant financing providers (referred to as the "supply side" throughout the study). The study team conducted a survey of nine formal financial institutions (FIs) in Maputo City. Semi-structured expert interviews

1 For details of the methodology see Annex 1.

with other formal and informal FIs provided additional information not only about existing financing products and services for the agricultural sector, but also about the challenges to finance this sector. Additionally, the study team triangulated the information during interviews with experts both in Manica Province and in Maputo City and Province.

Secondly, detailed information was gathered about the demand for financing from the value chain actors, with a particular focus on small and medium producers of perennial fruit crops ("demand side"). As examples, the mango and lychee value chains were analysed in Manica and Sofala provinces. The focus was placed on the production and particularly on assessing the financing needs of small and medium producers with the potential to expand the production of perennial fruit crops. To assess this, the study team conducted a survey with 48 producers in five districts of Manica Province[2], most of them in Báruè, Gondola, and Sussudenga. The surveyed farms are categorized into three groups according to the size of their permanent cropped land[3] in order to correlate further findings with the size of land and to finally create more accurate farm types. Additionally, the study team facilitated focus group discussions and conducted expert interviews in Manica, Nampula and Sofala provinces. Outputs from this data collection and analysis were "farm profiles". To gain a broader overview on general perennial fruit crop value chains, we examined citrus value chains in the Maputo Development Corridor in collaboration with the UFRRJ.[4] This case study provided further information on challenges and potentials of citrus value chains, as well as on the financing needs of various actors. Furthermore, it served for triangulating the results from the mango and lychee VC analysis and determining which findings are specific for each perennial fruit crop VC and which are general findings of the partial Value Chain Analysis (VCA).

To ensure that the conclusions drawn from both research areas (supply and demand) and the recommendations for future interventions of the financial cooperation were adequate for Mozambique, the historical, political and economic context of the country was examined. This included an analysis of relevant national policies and regulations, as well as development initiatives concerning the Agricultural Growth Corridors (AGCs), and the infrastructure. In consultation with KfW, the study team chose the Beira and Nacala Agricultural Growth Corridors, as

2 Districts of Báruè, Gondola, Manica, Macate and Sussudenga.

3 For more information see Table 1.

4 See a brief summary of the case study in Annex 2.

well as the Maputo Development Corridor for the case study on citrus VCs (see Figure 3).

Figure 3: Geographic coverage areas

Source: https://www.weltkarte.com/afrika/mosambik/karte-distrikte-mosambik.htm (19.04.2016)

For the development of the recommendations, the study team analysed the financing gaps based on the findings from the assessment of the demand and the supply of financing the production of perennial fruit crops and products derived from perennial fruit crops. To triangulate these results and to discuss draft recommendations, round table meetings were held with experts from the financing and the agricultural sector in Manica Province and in Maputo City and Province. In a further step, the recommendations were refined and later discussed during a

presentation at KfW (including GIZ and German Embassy officials) and a public presentation in Maputo City.

2.2 Concepts and research questions to understand the demand side

In order to understand the limitations and the potential of agricultural value chains as well as the actors' demands for finance, it is necessary to look at the VC and its framing conditions as well as the various segments, processes, and functions along the chain. The *Value Chain Approach (VCA)* analyses the dynamics, opportunities and constraints of businesses as well as the determinants of their competiveness and profitability, the links between actors, and the distribution of benefits along the whole chain of producers, processors, service delivers, traders, and consumers (Humphrey, 2002; Roduner, 2005; Gloy, 2005).

The focus on the (potential) producers of perennial fruit crops requires an in-depth examination of the production systems and farm characteristics. A focused farming system analysis thus complements the VCA. The *farming systems* categorization by FAO (FAO, 2001) is used to categorize farms by similar characteristics like resources and management.

The approach used to assess the VC's and the producers' characteristics is described in the following section.

2.2.1 Value Chain Approach

The VCA is a growth based development approach which focuses on all activities related to production, processing, trading and consumption of a commodity (see Figure 4). It takes into account these various VC segments, their linkages as well as the relevant finance and supporting services. This approach has been used widely to identify constraints and needs along the VCs. In a next step adequate responses can be determined to tackle these challenges and to support the VCs' development (GIZ, 2007).

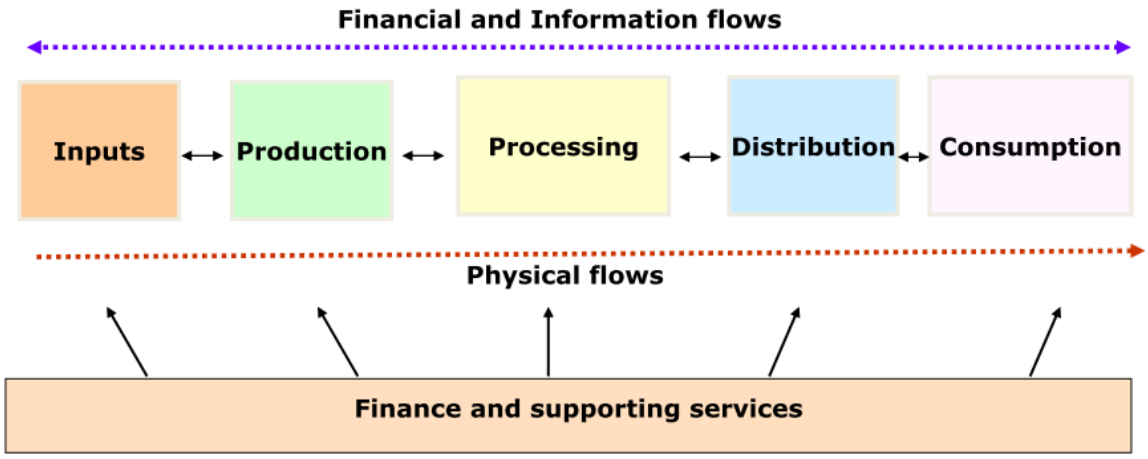

Figure 4: Schematic diagram of a value chain

Source: African Development Bank (2013: 3)

In this study, it is assumed that specific investments in production, transport and other segments can promote the development of the VCs and may lead to increased income generation. However, the actors along the value chain may have specific needs for financial products and services. Interventions aimed at facilitating the access to financial products and services and promoting the development of VCs must be tailored to the specific needs of various actors along the VCs.

Lead firms play an essential role in VCs. They are characterized by their strong commercial links to other VC actors and their ability to integrate them into the VCs. They can integrate small-scale farms by providing finance for inputs. Thus, lead firms can have a double function as a recipient but also as providers of financial products and services, particularly to other firms. It is therefore important to look at them closely and examine their potential role as finance providers.

The VCA approach will ensure a holistic view on the VC and serves in this study to:

- Identify the actors and their functions in the VC;
- Identify the financial flows between VC actors ;
- Identify constraints and challenges of VC actors;
- Identify lead firms within the VC.

2.2.2 Farm categorization

The study focuses on the (potential) producers of perennial fruit crops. Mozambique has a wide range of producers in the agriculture sector. Reports from

the Mozambican authorities (INE and MASA)[5] and World Bank[6] give a comprehensive overview of farms in Mozambique (INE, 201; MASA, 2015; World Bank, 2012). According to these reports, the farms can be distinguished into small-scale, medium-scale and large-scale farms. Farms are considered "large" if they exceed at least one of the following criteria: 50 ha of rainfed cropped area or 10 ha of irrigated land; 100 cows/500 pigs-goats; or 10,000 poultry birds. Farms are considered "small" if all of the indicators are below the following limits: 10 ha of rainfed cropping area or 5 ha of irrigated land; 10 cows/ 50 pig/ goats; or 2,000 poultry birds. Medium farms are those falling between the two sets of criteria (INE, 2011: 11 f.; República de Moçambique, 2015: 11 f.).

The quantity of farms is unequally distributed with the exact numbers listed in Table 1. 99 % of the farms are small-scale farms, according to the classification of farms by the National Institute of Statistics and the Ministry of Agriculture and Food Security

Table 1: Farm categories and number of farms in Mozambique

Farm category	Small	Medium	Large	Total
Number of Farms	3,801,259	25,654	840	3,827,754

Source: INE (2011); República de Moçambique (2015)

To identify adequate interventions to enhance the access to adequate finance within the diverse agricultural landscape of Mozambique, the farm types have been structured to reflect the different financial needs as well as other relevant characteristics. In addition to the quantity of cultivated land, other factors that distinguish farms are cultivated crops, access to markets, agricultural knowledge, management skills, etc. These are very closely related to farmers' needs as well as their decisions for investments. An overview of the different farms in Mozambique and their usual characteristics can be seen in Table 2.

5 INE (2011): Censo Agro-Pecuário 2009-2010. Resultados Definitivos. Instituto Nacional de Estatística. Maputo; República de Moçambique (2015). Anuário de Estatísticas Agrárias 2002-2012. Ministério da Agricultura e Segurança Alimentar (MASA). Maputo.

6 World Bank (2012): Agribusiness indicators. Mozambique. Washington, DC.

The agribusiness indicators report also describes the low access to credits by small-scale and medium farms (World Bank, 2012). Access to finance by farmers is influenced by various factors.

Farmers' perceptions of the financial sector, their financing strategies and the availability of financial products and services play a vital role in the decision for the use of credits. Credit history, the formal status of business, and assets are determining factors for the provision of credits by the majority of institutions (Brandt, Brüntrup, 2014; De Groot, Sjauw-Koen-Fa, 2014). Detailed information about the constraints of the various farm types is essential to adjust target-oriented financial services and products to farmers' individual conditions.

Further, the study focuses on the so-called "emerging farms". They are considered to have an enhanced potential to invest in the production of perennial fruit crops. There is no official definition of emerging farms, and in the literature (Hanlon, Smart, 2014), emerging farms are characterized in various ways. Indicators are "having at least 5 ha available for cultivation", "hiring labour regularly, and/or "having a certain amount of cash-income". In this study, emerging farms are meant to show the potential to expand and / or intensify their production of perennial fruit crops as well as to play a vital role in strengthening the respective VCs (see Table 2).

Additionally, farmers' organizations play an important role in increasing farmers' access to finance and improving farmers' integration into VCs.

Table 2: Assumed range of farm types in Mozambique

	EMERGING FARMS				
Farm types / **Characteristics**	**Small-scale farms**	**Emerging small-scale farms**	**Medium-scale farms**	**Established commercial farms**	**Large-scale farms**
	Farmers' associations				
Cropland size	1-3 ha	3-10 ha	10-50 ha	50-100 ha	>100 ha
Input level / irrigation	Low	Low to medium		High to very high	
Technical, management and financial skills	Low	Low to medium		High	
Specialization	Low	Medium		High	
Market participation	Weak	Moderate		Very strong	

Source: Own illustration

To integrate the described aspects in the study, the following research questions have been prioritized:

- What are the (financial) needs of the different farm types to enter/increase/ or improve the production of perennial fruit crops and the selected fruit crops?
- What are the financing strategies of the various farm types?
- How do the various farm types perceive the products and services to financial providers?
- How do farm characteristics influence their access to financial products and services?
- What potential do farmers' organizations and non-financial services offer to improve access to finance or production?

In the next section, the underlying concepts and approaches for understanding the supply side will be presented.

2.3 Concepts and research questions to understand the supply side

Having analyzed the financing needs of the actors of the selected VCs, it is crucial to understand why these needs are not yet fully addressed by financial institutions.

The financial sector in Mozambique does not yet fulfil its fundamental function to provide capital to the whole economy. Especially in rural areas and for the agricultural sector, the commercial banks are promoting investments in a tentative fashion. The resulting credit bottleneck in rural areas is only partly made good by non-bank financial institutions and informal financing providers.

At first sight, this seems remarkable since debt financing is the core business of commercial banks. But rural finance is a typical problem for countries in which the majority of farmers are of small scale. Overall in the developing world, the total amount of debt financing that local banks supply to smallholder farmers meets less than 3 % of total demand (Initiative for Smallholder Finance, 2014: 4; Dalberg, 2012: 4 f.).

2.3.1 Financing agriculture

Financing agriculture through traditional rural finance instruments is perceived as having high costs of operation, high risks and low returns on investment (FAO, 1998; Meyer, Nagarajan, 2005). Figure 5 shows that rural and agricultural finance are only small components of the overall financial system. Rural finance comprises the full range of financial products and services – loans, savings, insurance, and payment and money transfer services – needed, offered, or used in rural areas by households and enterprises. The term encompasses agricultural finance which refers to financial services ranging from short-, medium- and long-term loans, to leasing or to crop and livestock insurance (see Table 3).

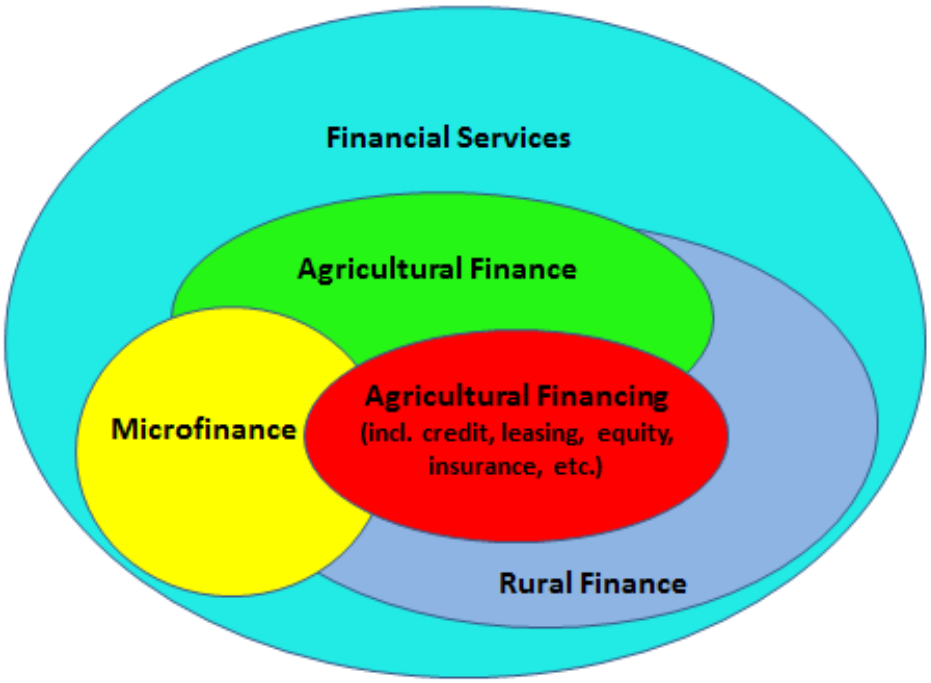

Figure 5: Rural and Agricultural Finance

Source: Adaptated from Fernando (2008) and Palakurthi (n.d.)

Table 3: Elements of the supply of agriculture sector with financial services

Financing sources	Financing providers	Financial services	Financing purpose
▪ Saving deposit of local rural households ▪ Reserves of local firms ▪ Savings and reserves from other regions (national and international) ▪ Insurance premiums ▪ Public funds ▪ Development cooperation funds ▪ Climate Financing (adaptation, mitigation)	▪ Private banks ▪ Microfinance institutions ▪ Cooperatives ▪ Special banks (Agriculture and Development banks) ▪ Processor and Trader within agrarian VCs ▪ Investment funds ▪ Leasing firms ▪ Insurance ▪ State (in various sectors and at various layers) ▪ NGOs ▪ ASCAs and ROSCAs ▪ Money lenders ▪ Relatives and friends	▪ Loans ▪ Savings ▪ Equity ▪ Insurance ▪ Payment transactions ▪ Money transfers	▪ Private sector in agriculture, in upstream and downstream areas and processes. ▪ Households (consumption and social security/ protection) ▪ Infrastructure and other public goods and services

Source: Adapted from Brandt and Brüntrup (2014)

2.3.2 New approaches for financing agriculture

The results of the agricultural lending programmes in developing countries commonly have unsatisfactory outcomes, with low rates of repayment. The cost of directly lending to farms, especially small-scale farms, in inaccessible rural areas with less-educated and low-income populations is often prohibitive to formal financial institutions. To sum up, rural finance continues to face high barriers.

Therefore, the study will also consider an innovative approach: *Agricultural Value Chain Finance (AVCF)*. This approach looks beyond the direct borrowers and takes their links with other VC actors into account when assessing their business plans. It is defined as "any or all of the financial services, products and support services flowing to and/or through a value chain to address the needs and constraints of those involved in that chain" (Miller, Jones, 2010: 2).

In line with this definition, AVCF instruments are categorized into a) internal or direct value chain finance, and b) external / indirect value chain finance. Whereas the latter contains typical rural finance products such as short and medium-term

bank loans, internal value chain financing instruments takes the links between actors of the value chain into consideration as assets that should be promoted.

For instance, financial institutions could provide high volume loans to large-scale producers that contract small-scale farmers and provide them with finance, technical assistance and market access.

Next to these approaches, *equity finance* is more and more prevalent among financiers for agricultural production and processing. Hereby, capital is paid into an enterprise by owners or shareholders. Providers of equity include individual investors, stock markets, risk-capital funds, national and international development banks, and socially-oriented investment funds.[7]

According to various secondary sources, there are probably a combination of constraints in Mozambican agriculture that prevent financial institutions from offering more financial products and services. With regard to the selected VCs, the study team wants to consider:

- Where and why are financiers reluctant to step in?
- What are the specific reasons and challenges?
- What are the potentials and barriers for financing the selected VC in general?

Even though the disabling factors will offer important insights into the strategic and operational decisions of financial institutions, the study team will focus on the enabling factors for financing of the agricultural sector in Mozambique in order to be able to provide concrete recommendations on how to close the described financial gaps. Hence, further research questions are:

- Which financiers offer financial products and services in rural areas that meet the needs of emerging farms and other actors in the selected VCs?
- How could successful initiatives be scaled up or replicated by other financing providers?
- Which roles could governmental institutions, donors, lead firms in the value chain and other non-financial financing providers play?

Based on the preceding analysis of challenges and potentials of rural finance, the study team assessed whether the approach of Agricultural Value Chain Financing (AVCF) is applicable to the context of Mozambican VCs of perennial fruit crops.

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7 FAO (n.d): Financing Agricultural Term Investments, http://www.fao.org/docrep/008/y5565e/y5565e07.htm.

Moreover, the study team has compared lessons learnt and good practices from applying AVCF instruments in other parts of the world or in other VCs within Mozambique to the conditions found in the selected VCs. AVCF could be one way to match demand for and supply of financial products and services in the selected VCs.

Equity finance is offered for instance by AgDevCo[8]. International development banks usually invest equity in a company over a time horizon of 5-15 years, followed by a period of gradual divestment. Due to this long time horizon, equity finance could fit the needs of value chains of perennial fruit crops. The study takes into account that the Mozambican regulatory environment impedes the expansion of equity finance and that KfW does not provide this type of investment. Nevertheless, the concept and good practices have been analyzed within the narrow frame of the objectives of this study.

However, analyzing the supply side goes beyond the financial products and services. For example, technical assistance might be very important to develop the VCs or capacities of the main target group before being able to use AVCF instruments (rather demand side-driven), either to enhance the capacities of national financial institutions to serve the VCs (supply side). In the AVCF approach, technical assistance is referred to as "accompanying measures". The study team assessed the need for accompanying measures only in direct relation to future financial products and services.

2.4 Matching supply and demand

As mentioned in chapter 1.3, the outcome of the study is meant to provide a sound base for KfW and its partners to develop adequate financial products and services for actors of perennial fruit crops VCs in Mozambique. This implies that the study team provides solutions to match supply and demand and close the financing gap (see Figure 6).

8 AgDevCo is a social impact investor, fund manager and agribusiness project developer acting in Mozambique since 2009 (see http://www.agdevco.com/).

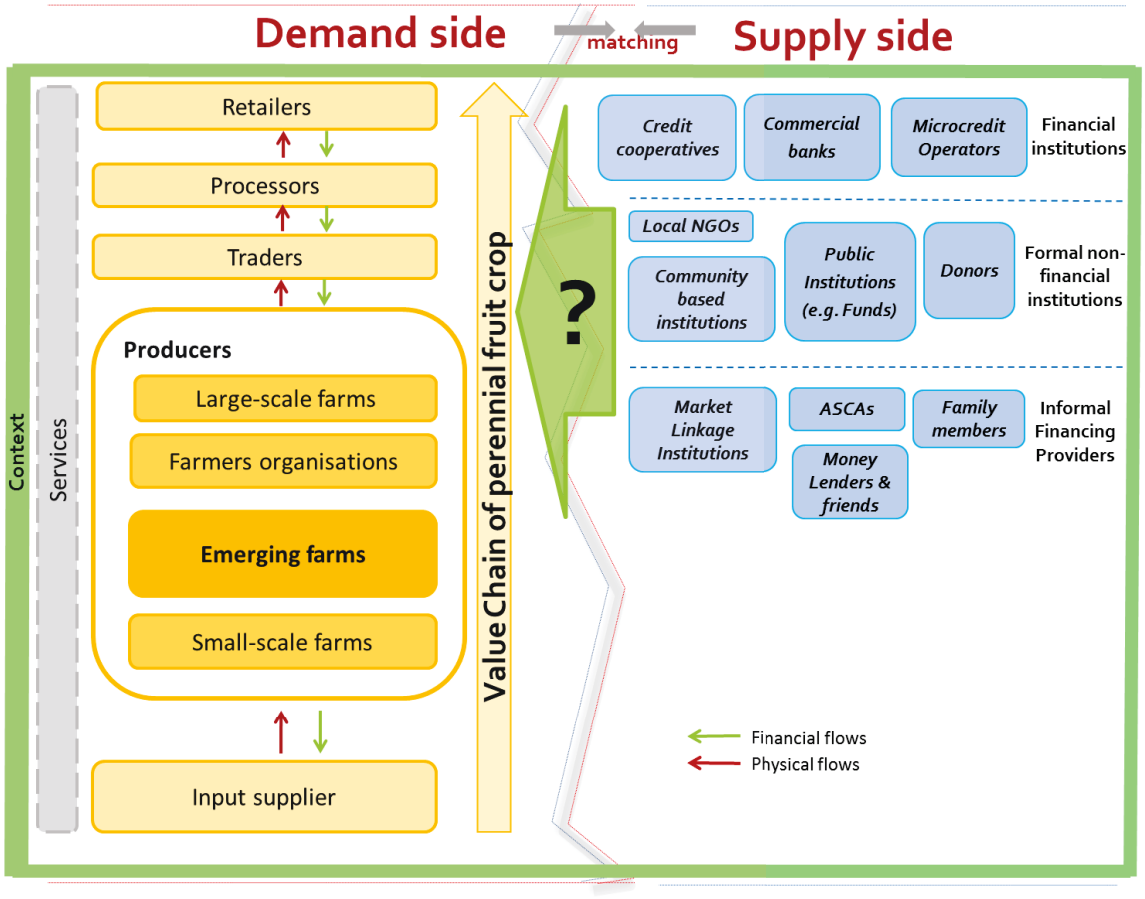

Figure 6: Framework for matching supply and demand

Source: Own illustration

These solutions are based on the data collected on the demand and the supply side. Additionally, they are adapted to the environment that KfW and its partners will be operating in. The emphasis lies on supporting Mozambican financial institutions to develop and deploy viable products, e.g. by recruiting agricultural experts, as well as improving their rural services, e.g. improving the lending process. This is because 97 % of global technical assistance funding currently goes to programmes that address demand side constraints, while relatively little funding goes to support financial institutions to develop and deploy viable products that will increase the overall supply of agricultural financing (Initiative for Smallholder Finance, 2014: 6). The study team seeks to give recommendations to KfW about where and with which Mozambican counter-parts it can broaden and deepen the offer to meet the needs of emerging farms.

2.5 Considerations on impact of the future interventions

The outcome of the study ought to be that KfW and its partners develop adequate financial products and services for actors along the value chains of perennial fruit crops. The impact of this ought to be that VC actors make better use of their potential and increase their income due to an improved access to financial products and services that are adapted to their needs. Meanwhile, the system of objectives describes in detail the products and outputs through which the study team aims to establish a sound basis for the outcome, it is not yet obvious through which transmission channel the outcome will lead to the impact.

The prospective impact of the study is illustrated in Figure 7 through shifts of the classic supply (S) and demand (D) curves, triggered by the intervention of KfW and its partners. The price for the capital, the nominal interest rate [i] is shown against the quantity of financial services and products for the target group or in other words, the accumulated capital [C].

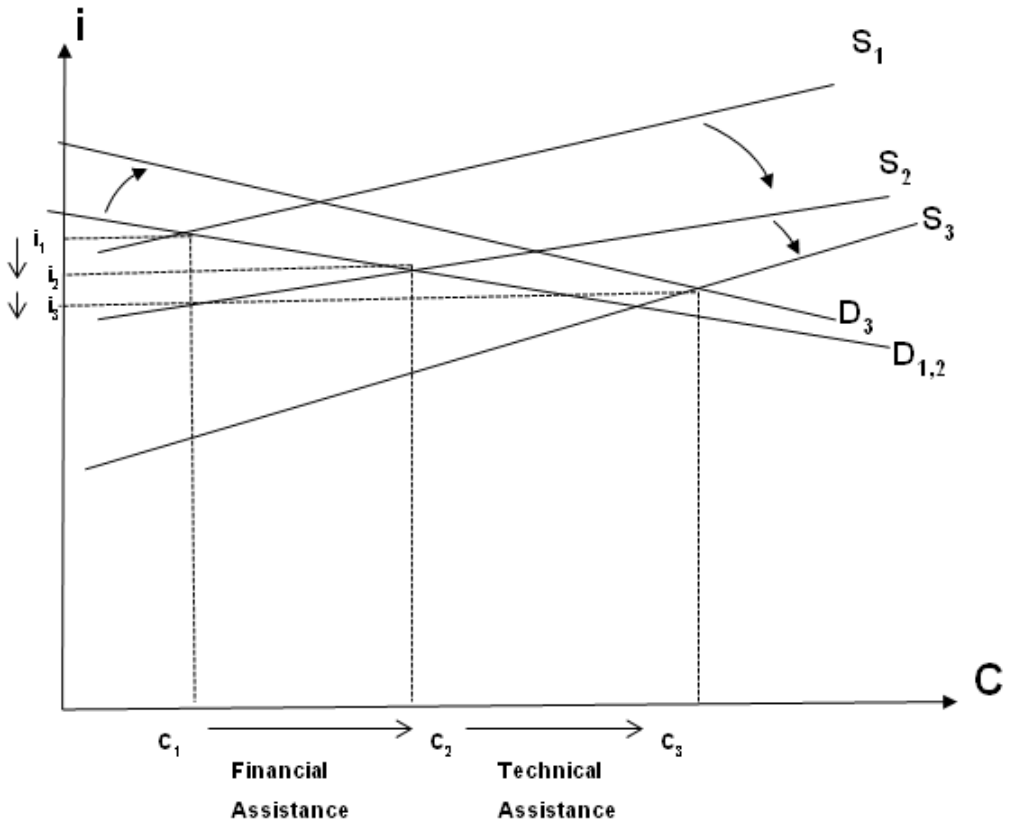

Figure 7: Prospective impact of the study (a new balance of agricultural finance)

Source: Own illustration

In *period 1*, an almost inelastic supply is assumed due to supply oligopoly on the market for agrifinance in Mozambique, meaning that there are only a handful of financial institutions offering agrifinance and competition is weak in this niche market. A second reason for the supply not being very sensitive to changes in the interest rate (in particular to the national key interest rate) is the high risk associated with the agricultural sector. Similarly, the price elasticity of demand for capital is assumed to be rather low because of the low financial literacy and high financial exclusion of the rural population: If people are not well informed, involved and skilled about the dynamics on financial markets, they will probably not react quickly to changes in interest rates. But they will ask for agricultural credits in the medium-run if the word spreads that it has become much easier and/or inexpensive to receive a loan for their business.

Then German financial cooperation in partnership with Mozambican institutions increases the quantity of capital in the Mozambican market, which leads to a parallel translation of the curve (intervention on the supply side). Furthermore, the financial products and services are adapted to the needs of the target group, the VC actors, which includes preferential interest rates. Since preferential interest rates are set politically, the supply curve is even more inelastic in *period 2*. The market balances out at a new point with lower interest rates and a higher quantity of agricultural finance provided to the VC actors.

In *period 3*, further intervention is provided in the form of technical assistance for the VC actors as well as for the financial actors. This leads to a higher demand for and an increased supply of agrifinance. Also the price elasticity of both increases due to less risk in view of the improved business skills of the VC actors and more capacities within the financial institutions to work with the VC actors. The new balance is on a much higher level of capital (in C_3) and with a slightly lower interest rate than at the end of period 2.

3 Context

3.1 Socio-economic panorama

Mozambique has an area of 801,590 km²,[9] and a population of 25.7 million (2015). The majority of Mozambicans live widely dispersed in rural areas. Correspondingly, the urbanization rate is quite low, with only 31.8 % of the population residing in urban areas. Furthermore, 66 % of the Mozambicans are younger than 25 years and 45 % of the Mozambicans are younger than 14 years.[10] So, there are a lot of young people entering the labour market soon.

The economy of Mozambique has grown constantly over recent years, and the country has been among the fastest growing economies in Sub-Saharan Africa over the last 20 years (IMF, 2014: 7). In 2014 Mozambique's GDP growth was about 7.2 %.[11] Major contributors to this economic growth have been the extractive sector, boosted by foreign direct investments, construction, business services, transport, and communications, as well as the financial sector – located mainly in cities – due to a credit expansion and an increased income. However, the agriculture sector employing 70 % of the population lacks this dynamism with growth of only 4.6 % in 2014 (AfDB, OECD, UNDP, 2015).

Despite the positive general economic development and progress in key social services, such as health and education, Mozambique remains one of the poorest countries in the world. With 59.6 % Mozambicans (2014) living below the poverty line and with a 2014 Human Development Index (HDI) of 0.416, Mozambique ranks 180 out of 188 countries and territories (UNDP, 2015). Furthermore, the country continues to be one of the main recipients of Official Development Assistance (ODA)[12]. Correspondingly, it remains a challenge to create growth from which poor and rural people can also benefit. The development of the agriculture sector, which employs more than three quarters of the workforce, is key to generating inclusive growth in Mozambique.

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9 More than twice as large as Germany.

10 Annual Projection of Total Population 2007 – 2040, based on the results of the 3rd General Census of Population and Housing 2007 (INE, http://www.ine.gov.mz/estatisticas/estatisticas-demograficas-e-indicadores-sociais).

11 World Bank national accounts data, and OECD National Accounts data files. http://www.worldbank.org/en/country/mozambique.

12 http://www.oecd-ilibrary.org/development/data/oecd-international-development-statistics/oda-official-development-assistance-disbursements_data-00069-en, accessed 17.01.2016

Thus, the agriculture sector can contribute to narrowing income disparities between rural and urban areas, and reducing poverty, particularly in rural areas.

3.2 Historic overview of strategies for developing the agricultural sector

The Mozambican Constitution defines the agricultural sector as the "basis of national development" (Republic of Mozambique, 2004, Art. 103.1). Promoting the development of the agricultural sector has played a central role over recent decades and various attempts have been made to increase its performance during the eventful history of Mozambique.

After independence in 1975, the Government of Mozambique first followed a socialist path. It set food production as priority and nationalized land. Furthermore, large state-owned agricultural businesses were established (Mosca, 2008). However, Mozambique entered a fundamental crisis only few years after independence, marked by a civil war (1977-1992), accelerated migration to urban areas, and a sharp fall in the economic performance that also severely affected the agricultural sector.

As a reaction, the government implemented reforms at the beginning of the 1980s with the key elements of the Structural Adjustment Programmes and a market based approach. This included trade liberalization measures as well as a privatization of crucial functions and services,[13] so that the state transferred many of its roles to the private sector. Although several government strategies and plans to fight poverty had identified the agricultural sector as key, the reforms also impacted on the agricultural sector. For example, the GoM limited public expenditure for the agricultural sector to about 3-4 % of total public expenditure, and stopped the active promotion of food production.

In 2008, the global food crises added to a new concern for the country's food self-sufficiency, resulting in riots. As a reaction, the GoM developed the Food Production Action Plan (*Plano de Acção para a Produção de Alimentos,* PAPA) 2008-2011 to promote production of cereals, oilseed plants, roots and tubers, poultry and fish.

13 However, several measures for liberalization and privatisation were poorly executed (see Hodges and Tibana, 2004).

In 2008, a slight increase in public expenditure in the agricultural sector was observed. However, averaging approximately 5.4 % in the period from 2001 to 2010 (República de Moçambique, 2011; World Bank, 2011), it was still lower than the target of 10 % of public expenditure that the GoM set in 2003 in the framework of Comprehensive African Agriculture Development Programme (CAADP) for expenditure on the development of the agricultural sector (AU, 2003 and 2013).

To attract further investments in the agricultural sector, since 2006 the GoM has promoted Public Private Partnerships (PPPs), with PARPA II (*Plano de Acção para a Redução da Pobreza Absoluta* II, 2006-2009), and later with PARP (*Plano de Acção para a Redução da Pobreza*, 2011-2014). Investments in agriculture and agro-industry increased from USD 236 million and 46 projects in 2012 to USD 878 million and 54 projects in 2013, mainly due to Foreign Direct Investments (FDIs) (INE, 2013: 104). The increase of 272 % in value compared to an increase of 17.3 % in the number projects is due to investment in megaprojects. It remains to be seen in the coming years, whether further large investments can be attracted and whether these investments are going to result in sustainable and inclusive growth.

3.3 Agricultural Growth Corridors

In addition to PPPs, the GoM's Strategic Plan for Agricultural Development (PEDSA) 2011-2020, which is in accordance with the CAADP, emphasises the potential of spatial development initiatives in form of growth poles and development corridors to foster economic growth. These initiatives are a planning tool seeking to make use of the existing backbone infrastructure, to improve conditions for businesses in a certain area along the infrastructure and to attract investments. This is supposed to result in economies of scales, an enhanced impact of limited financial resources, accelerated growth of businesses and new investments. Several growth corridors were defined in Mozambique[14], for example the Maputo Development Corridor (CDM) and the Nacala Development Corridor (CDN). The Beira Agricultural Growth Corridor (BAGC) is also a spatial development initiative, focussed on enhancing the agricultural sector by attracting further investments (see Box 1).

14 Following the concept of an African Agricultural Growth Corridor (AAGC) proposed by the UN General Assembly in 2008 and reviewed and adopted by the World Economic Forum (WEF) (World Bank, 2010: 6 f.; Ikegami, 2015: 5).

The results of this study are based on the results of a partial VC analysis and a farm survey in Manica and Sofala province that form part of the BAGC. To assess the supply of and the demand for financing for agricultural VCs, we examined whether these spatial development initiatives have already had an impact on financing agricultural businesses, access to markets and factors of production. However, generally speaking, no significant impact could be ascertained.

Box 1: Impact of the Development Growth Corridors on small and medium farms

Several commercial experts stated that the BAGC has considerable potential to attract capital and promote development due to its spatial approach. However, producers did not perceive any influence of the BAGC on financing and infrastructure as it is "only about politics" but "there are no structural changes" (Expert interviews, producers). Furthermore, it was mentioned that mostly mining companies make use of the existing railway, but trains do not stop in smaller cities to load crops (Expert interviews, producers).

In the case of the Nacala Corridor, many experts expected the establishment of the corridor to have positive impacts on the quantity of products bought by processors. Several experts suggested that big enterprises might benefit more from the corridor than smallholders due to the smallholders' location at remote areas without access to the infrastructure. Many of the experts interviewed expressed their desire for more transparency regarding the activities and investments related to the corridor. Potentially large land acquisitions combined with a lack of formalization of local DUATs (see Box 2) were criticised. Furthermore, many experts saw the term Nacala Corridor as a synonym for the agricultural megaproject ProSavana.

4 Agricultural finance in Mozambique

The financial sector in Mozambique has experienced significant growth over recent years and is characterized by various private, public and informal financing providers (see chapter 4.1). The return on equity (ROE) has grown constantly and banks were able to increase their asset portfolios by 20 % from 2014–2015, mostly due to increased foreign investments in the sector of natural resources exploitation (ThirdWay, Africa 2015). Nevertheless the sector is characterized by a high level of concentration with the four leading banks (BIM, BCI, Standard Bank and Barclays) accounting for approximately 80 % of all financial sector assets, and the credit portfolio concentration remains one of the main sources of risk[15]. Despite constant growth rates of the financial sector, the financial exclusion of large parts of the population and in particular of small and medium-sized agricultural producers remains one of the major constraints for the further development of the country (see section 4.2). The reasons on the supply side behind the lack of agricultural finance will be analysed in the sections 4.3, 4.4, and 4.7.1. Initiatives to solve the problem from the GoM and the international donor community (section 4.5), and private companies (e.g. through Agricultural Value Chain Financing, see section 4.6) will be listed and the potentials for agricultural finance in Mozambique highlighted (section 4.7.2).

4.1 Overview on financing providers in Mozambique

The financial sector in Mozambique consists of about 18 registered commercial banks, though this number fluctuates due to the competition between the existing financial institutions for new urban middle class customers and business in the few highly profitable economic sectors, e.g. the extractive industries. All of them offer credit to agricultural businesses, but only a few offer financial products that are specifically adapted to the needs of this client group, namely BCI, BTM, BOM and Standard Bank.

In addition to the commercial banks, there are a variety of other actors active in the financial sector (Table 4), but many of them do not operate in rural areas and are not serving the agricultural MSMEs. Therefore, the study team carried out a mapping exercise to identify currently active financing providers relevant to the target group of future interventions of KfW and its partners (see Figure 8).

15 For more information see IMF, 2004: 4; 2014: 17; 2015: 15; Gove, 2013: 10; World Bank, 2014: 5.

Table 4: Structure of financial system (active institutions)

Type of Institution	2013	2012	2011	Variation 2012/13
Banks	18	18	18	0
Microb anks	10	8	8	2
Credit Cooperatives	8	7	7	1
Leasing	0	0	0	0
Investment corporations	2	1	1	1
Card iss uing and management	2	1	1	1
E -money	2	1	1	1
Venture Capital	1	1	1	0
G roup -purchase managing companies	1	1	1	0
Foreign Exchange Bureau	19	19	21	0
Loan and Saving	12	11	10	1
Microcredit Operator	233	199	166	34

Source: Banco de Moçambique (2013: 120)

Two of the 18 commercial banks (BOM, Socremo) offer micro-saving services and microloans to households as well as micro and small businesses and therefore called microbanks. In addition, a few non-bank microfinance institutions (MFIs) are operating in Mozambique (e.g. Hluvuku-Adsema, FDM, Africa Works, CCOM and MBFM). Furthermore, there are formal and informal micro-operators. The latter are mostly individual money lenders in the communities.

A primary stakeholder of agricultural finance and small-scale producers is GAPI, (*Gabinete de Apoio e Consultor as Pequenas Indústrias* in the past, now registered as *Sociedade de Gestão e Financiamento para a Promoção de Pequenos Projectos de Investimentos*, SA). GAPI was founded 25 years ago as a public-private partnership by the GoM, civil society and private investors from Portugal. Its mission is to stimulate the expansion, diversification and consolidation of the national business community as well as of the financial system in Mozambique.

By law, it is an investment company, but calls itself Development Finance Institution, since it promotes the competitiveness of small and medium enterprises (SMEs) (currently around 600), in particular in disadvantaged economic sectors like agriculture and fisheries. 70 % of their portfolio is directed to the agricultural sector.

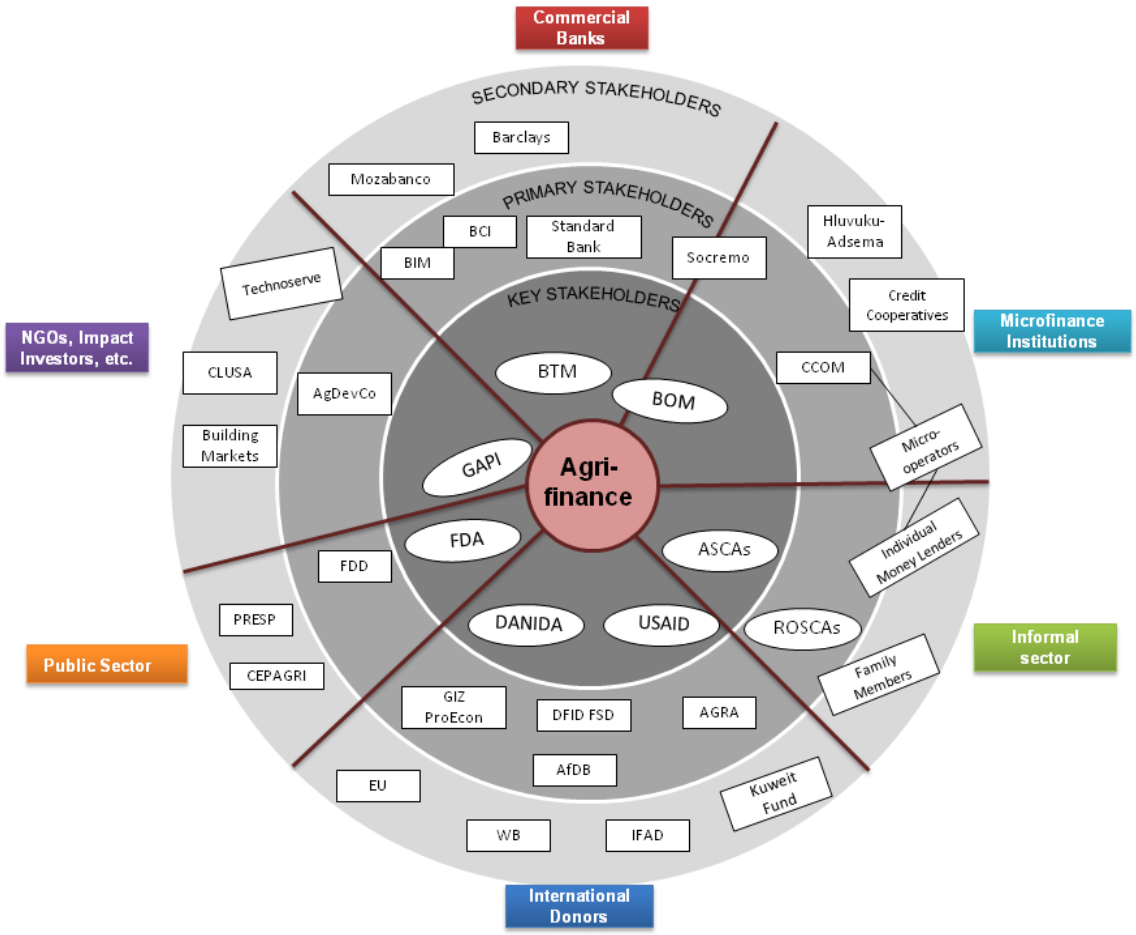

Figure 8: Stakeholder map of agricultural finance in Mozambique

Source: Own illustration based on analysis

There are a few other stakeholders from the private sector and civil society that are involved in promoting agricultural finance, e.g. Building Markets, CLUSA, and Technoserve[16].

Important for agricultural and rural finance in Mozambique are the two public funds *Fundo de Desenvolvimento Agrícola* (FDA) and the *Fundo de Desenvolvimento Distrital* (FDD, popular under the name "*Sete milhões*"). Many international development agencies are active in the agricultural sector and in the financial sector in Mozambique, supporting interventions with subsidized credit lines and guarantee funds.

Since, as described in the following section, the provision of finance by formal financial institutions to the agricultural sector is very limited, it is also essential to

16 To find out more about these activities with the support of international donors, see section 4.5.

look at the informal financing providers. This includes money lenders, friends and family members, as well as community based savings groups like Accumulating Savings and Credit Associations (ASCAs) and Rotating Savings and Credit Associations (ROSCAs), including *Xitiques*.

4.2 Financial exclusion of the rural population and the agricultural sector

Financial exclusion still represents one of the major constraints on the further development of the country. According to the latest FinScope Consumer Survey Mozambique (2014), 60 % of adult Mozambicans are excluded from finance. This Figure is significantly lower than in 2009 (78 %) but more than half of the Mozambicans still do not have access to formal or informal financial services. Furthermore, only 20 % are formally banked[17]. The financial access strand by geographic area shows the disparity between urban and rural areas. Financial exclusion in rural areas (69 %) is above the national average. The considerable improvement to 2009 seems to be due to increased access to informal financial services. In particular, different forms of community based savings groups like Accumulating Savings and Credit Associations (ASCAs) and Rotating Savings and Credit Associations (ROSCAs), including *Xitiques*, have become more and more important over recent years, now counting more than a million members[18].

However the majority of the formal financial providers are underrepresented outside urban centres. Almost half of their functioning branches are located in Maputo city and Maputo Province. The same applies for 223 out of 258 microcredit operators (FinMark Trust, 2015).

The provision of financial products and services in rural areas faces a variety of constraints, leading to the above mentioned exclusion. From the financial providers' perspective the operating costs in rural areas are high relative to potential profits. The low-income status of the rural population and therefore rather low value of transactions and the lack of volume especially due to a low population density lead to excessive costs per client or transaction, which keeps formal financing providers from expanding their operations in rural areas. Other constraints include high costs of money movements, poor infrastructure, and the lack

17 Banked = have/use financial products/services provided by a bank, regulated by the Bank of Mozambique (FinMark Trust, 2015: 29).

18 Savings with a membership organisation (Xitiques, ASCAs, etc.): 2009 – 194,000, 2014 – 1.01 million (FinMark Trust, 2015: 46).

of qualified human resources (FinMark Trust, 2012: 38). Another issue which strongly impacts the financial inclusion in Mozambique is the low level of financial literacy and customer education. Many rural dwellers never had contact to the formal financial sector and are thus not able to understand how these services work or how they could benefit from them. More than half the population does not know what a bank is and many rural dwellers are not aware of financial products and services such as loans, saving accounts or micro credits (FinMark Trust, 2015).

The GoM is still trying to find ways to tackle this problem. New laws and regulations have been approved and are being implemented to make it more attractive for financial actors to expand their operations in rural areas. The creation of private credit bureaus was approved as well as the creation of a movable collateral registry (AfDB, OECD, UNDP, 2015: 10). Also the donor community is active with initiatives such as DFID's Financial Sector Deepening programme and GIZ with ProEcon (see section 4.5).

Rural financial exclusion in Mozambique directly affects the agricultural sector. Agriculture is a rural based economic activity and for many rural dwellers it is the most important income source. According to the FinScope Consumer Survey (2014), the number of people depending on agriculture in Mozambique has significantly increased since 2009[19].

Considering this strong income dependency, it is evident that agriculture is a key sector for the economic development with a high potential to reduce poverty. But the majority of farms have not reached a commercial level of production due to issues related to the production factors, productivity and knowledge (see analysis in chapter 5). To set in motion the process of commercialization, huge investments are necessary.

19 In 2009 23 % of Mozambican adults received earnings from sales of agricultural products; in 2014 the figure was 41 % (FinMark Trust, 2015: 16).

Image 1: Transport of an ATM-Cabine – Investments for expanding infrastructure of financial institutions are still necessary

Photo: A. Ilal

This situation directly affects the agricultural sector that is still dominated by family, smallholder farming. To increase production and productivity of the family farming and to trigger the process of commercialization, huge public[20] and private investments in rural infrastructure (irrigation, roads, transport, power, and telecommunications), markets, rural finance, rural extension and research are necessary[21] (World Bank, 2008). As a consequence, the agricultural sector remains strongly underfinanced.

Of almost four million farms[22] in the country, less than 3 % have access to finance for their agricultural activities (AgriFin, 2012)[23].

20 In the context of the CAADP framework it is defined an allocation of at least 10 % of national budget to the agricultural sector (AU, 2003).

21 According to Pauw, Thurlow and Uaiene, increasing food crop yields will require substantial investments in research, extension and irrigation, which are inadequate in many parts of the country. Overcoming these constraints will require greater engagement in public-private partnerships where the public sector lacks capacity, such as credit and input provision (Pauw, Thurlow, Uaiene, 2011: 14).

22 Over 95 % of agricultural sector consists of small-scale farming by 3.2 million households. Only 5 % of agricultural production comes from commercial enterprises, employing some 400 farmers (República de Moçambique, 2011: 14; 2015: 12).

23 Indicator "% of rural households receiving credit for agriculture": 2.3 %, but disaggregated as follows: 2.26 % of 3.8 million small farms; 7 % of 25,654 medium farms; 14 % of 840 large farms. Commercial banks serve only 3.7 % of the farmers receiving credit.

The share of commercial bank lending to the agricultural sector completes this pictures. As shown in Figure 9, only 5% of credit activities[24] are directed to the agricultural sector. We will look in more detail into the provision of agricultural finance by commercial banks and microfinance institutions in the following section.

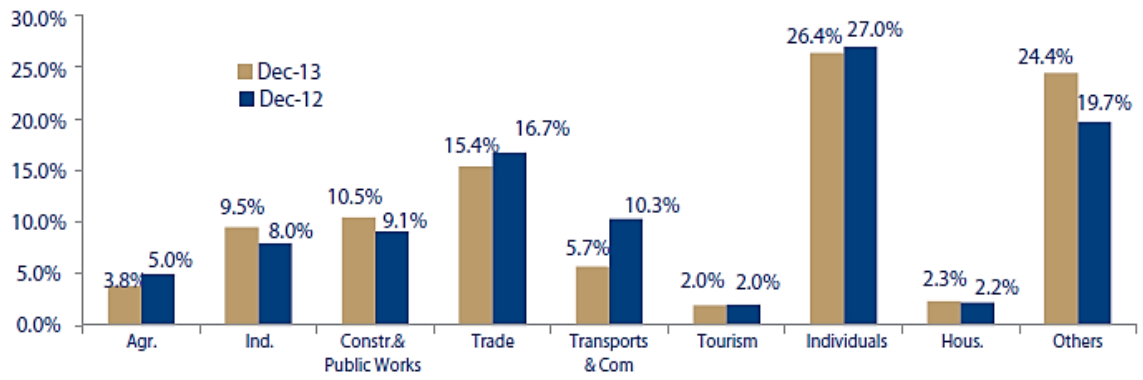

Figure 9: Overall lending of commercial banks

Source: Banco de Moçambique (2013: 9)

4.3 Provision of agricultural finance by commercial banks and microfinance institutions

The formal financial sector in Mozambique is still hesitating to enter the agricultural sector and to offer financial products and services tailored to the needs of agricultural actors. To get an insight into the financial sector's perception of agriculture and to find out the disabling and enabling factors for FIs to provide agricultural finance in Mozambique, the study team conducted a survey in the headquarters of nine formal FIs. Of the nine institutions, seven are commercial banks, two of which are actively providing microfinance products[25]: Banco Comercial e de Investimentos (BCI), Standard Bank, Barclays, Moza Banco, Banco Terra Mozambique (BTM), Banco Oportunidade de Moçambique (BOM), Socremo, Caixa

24 This figure only reflects credit for agricultural production, while the rest of the value chain is included under categories such as "trade" or "industry."

25 The results from the survey of these two banks (BOM and Socremo) are included in the chapter of Microfinance providers even though they formally count as commercial banks.

Comunitária de Microfinanças (CCOM) and Hluvuku-Adsema. The remaining two institutions are community based microfinance institutions[26].

To triangulate the results obtained from the survey, expert interviews were carried out with relevant staff in rural branches. The findings presented in following sections are mainly based on the results of this survey and the expert interviews.

4.3.1 Commercial banks

With the exception of BTM and to some extent BCI, the commercial banks on their own admission have so far not actively promoted agricultural lending, but they are connected to the sector, e.g. by operating special credit lines, making use of guarantee funds or, in the case of Standard Bank, working with large farm enterprises (normally more than 50 hectares) with a minimum credit volume of USD 50,000.[27] The share of agriculture in their portfolio ranges from 20% (BTM) to less than 1% (Moza Banco).

None of the banks targets small and medium sized producers with their products due to the high risks, high costs and low profitability. One exception was BTM. But even in the case of BTM a process of gradual upscaling to higher segments has left the bank with only 10% of small enterprises in their portfolio (BTM, 2014) and this trend is continuing. This trend can be explained by high losses in the agricultural portfolio in the past. Many of the credits granted to small agricultural enterprises had to be written off, so the bank shifted its operations to higher segments.

Six of the seven inquired banks (the exception being Moza Banco) have a specific organizational unit for agriculture[28]. This proves that the agricultural sector is embedded in the banks' institutional structures, but there are still challenges concerning the strategic orientation and capacity, including the lack of staff with sufficient expertise in agricultural finance, inadequate internal organisation for agricultural financing, weak monitoring, and lack of knowledge management concerning agricultural financing in the institutions.

26 Caixa Comunitária de Microfinanças (CCOM) and Hluvuku-Adsema.

27 For more details about farm categorization see section 2.2.2.

28 In the case of Barclays, the department is in the planning phase and has yet to be approved.

4.3.2 Microfinance institutions

Formal microfinancing providers are divided into commercial banks providing microfinance, microfinance institutions under prudential supervision of the Bank of Mozambique, and microfinance institutions that are only monitored (mainly micro-operators). The closely supervised institutions are credit cooperatives and four different types of microbanks, or "*caixa*". The basic microbank, the "credit and savings general bank" (*Caixa Geral de Poupança e Crédito*), is allowed to take deposits from the public and to offer loans. Just like the credit cooperatives, the saving and credit organizations are only entitled to take deposits and provide loans among their members, whereas the microcredit operators are not allowed to take deposits but can grant credit to the public.

Only a few MFIs in Mozambique serve small-scale farms and small agricultural businesses such as traders of agricultural products (BOM, CCOM, Hluvuku-Adsema, FDM, Africa Works and CPL). But there are no MFIs specialising on the agricultural sector. Generally the interviewed MFIs give mainly short-term loans at an average interest rate of 4.4% per month. But sometimes they also provide loans for a repayment period of up to two years.

The formerly largest MFI in Mozambique, Banco ProCredit, developed an agricultural microfinance portfolio for small-scale farmers with some 3,000 clients, but due to low profitability in rural areas, it turned its focus to small and medium enterprises (SMEs) and larger farm enterprises with guarantees. Finally

Image 2: Moza Banco's new branch in Inhambane City – Accessibility to banking infrastructure is still a barrier in rural areas

Photo: A. Demuth

ProCredit was bought by Ecobank (de Vletter, 2015: 20). The MFI BOM has approximately 4,000 agricultural clients in the city of Chimoio[29]. They finance mainly one-season crop production of small-scale farms (soya, maize, some horticulture), and some dairy farming activities. The average size of a standard production loan (group loan) is under MT 10,000. Hluvuku-Adsema has around 7,000 active clients and agricultural loans account for 10% of their portfolio. The average loan balance per borrower was USD 600 in 2013.

Image 3: Mobile branch of BOM in Manica Province – Microfinance providers are more present in rural areas

Photo: A. Demuth

4.4 Perceptions of risks and opportunities for financing agricultural value chains and producers

Almost all of the inquired FIs are in some way already involved in financing the agricultural sector, even though this is associated with a variety of risks. Some of the FIs find such investments attractive because they perceive a potential in the sector. They expect it to grow from mainly smallholder farming to a commercial level. Other FIs say that the expansion of the extractive industries will kick start a trickle-down effect and therefore lead to a higher domestic demand for food.

29 Capital of Manica Province, the province where the farm survey took place.

Consequently, the domestic market is expected to grow, opening new marketing opportunities for Mozambican producers. All of the FIs except one[30] have stated that they are planning to increase their portfolio in this area in the future.

However when asked about the attractiveness of agricultural investments, half of the FIs say that due to high risks and elevated costs, investments in the agricultural sector are not attractive or have only limited attractiveness (see Figure 10).

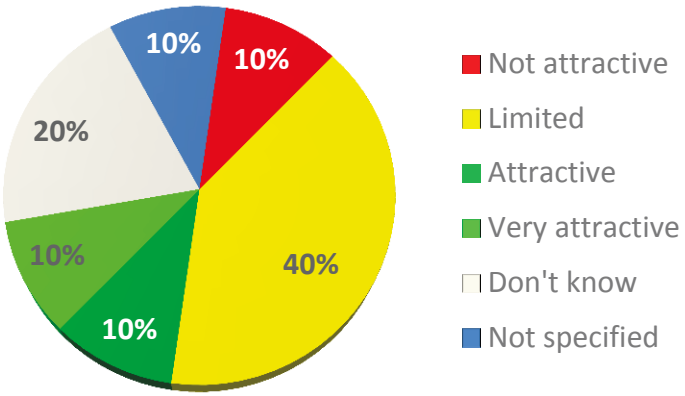

Figure 10: Attractiveness of investments into the agricultural sector

Source: Own illustration based on analysis

4.4.1 Perception of risks

There is strong agreement regarding the total default risk of agricultural loans[31]. 70% of the interviewed institutions perceive this risk as high or very high. The evaluation of specific risks involved in financing the sector varies significantly (see Figure 11).

For example, in the case of management risks (i.e. risks that arise when agricultural actors have a low level of management capacities), there are marked differences between the responses of the commercial banks which generally evaluate this kind of risk as rather high, and the MFIs which do not consider these risks

30 According to their Chief Operating Officer, BOM is not planning to expand the agricultural portfolio due to high costs for the portfolio management. Even if donors paid an extra amount for management fees it would not be interesting for the bank.

31 Agricultural loans are defined by INE as borrowing funds made available for agricultural production and related activities from resources outside the farm sector; see also INE (2006: 89, 148).

as a fundamental problem. When it comes to climate and weather risks, 60% of the interviewed FIs agree that such risks are high to very high. Therefore, in the interviews many of the FI staff members criticized the lack of agricultural insurance in the country, which leaves both producers and financing providers, highly exposed to the risks of production default due to extreme weather events.

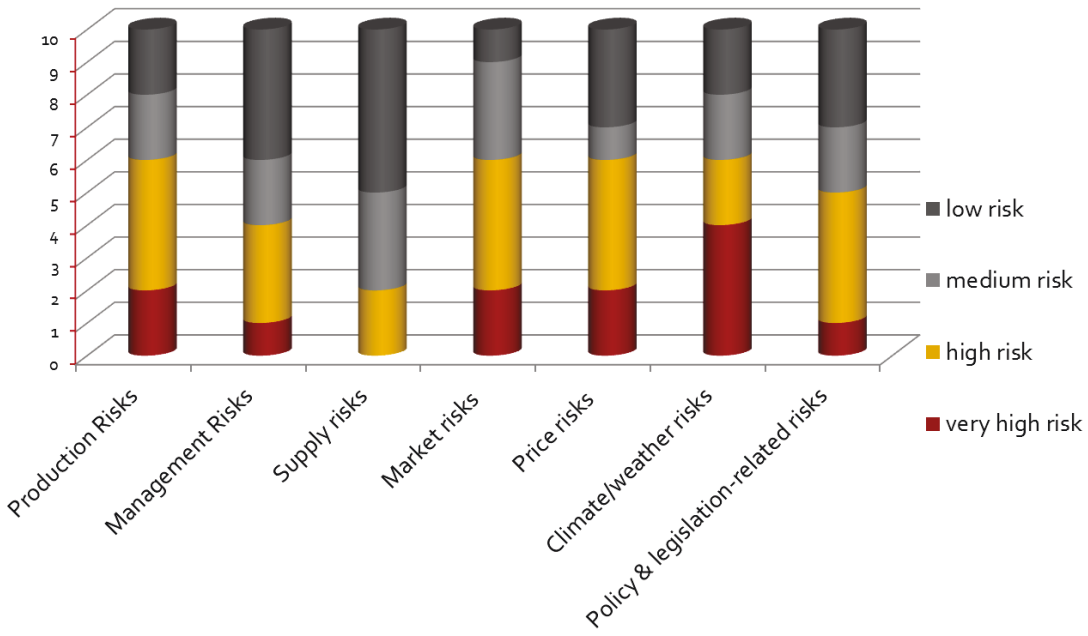

Figure 11: Risk perceptions of financial institutions

Source: Own illustration based on analysis

In the perception of the bank staff, the government's policies and regulations for FIs in Mozambique are good, but not beneficial for the agricultural sector. The policy mentioned most that impedes providing financing to agriculture, is the land policy (see Box 2). As there is no possibility to privately own real estate, the FIs cannot accept land as collateral. This is one of the factors causing a significant financial exclusion of small-sized producers, since in many cases they are not able to present other guarantees.

Box 2: Land tenure in Mozambique

In Mozambique, land is property of the state and cannot be sold. Therefore, it is important to distinguish between ownership of the land and the right of use and tenure (*Direito de Uso e Aproveitamento da Terra*, DUAT). The DUAT, in contrast to the land, can be sold, inherited or otherwise alienated or encumbered. The DUAT is for a maximum period of 50 years. However, the costs for the formalization of the DUAT prevent most smallholders from gaining the legal status for the land they use (see for further details chapter 5.3).

Other FIs criticized that there are no import controls and customs protection for agricultural products against strong competitors from abroad (except in a few VCs like sugar cane), exposing farmers to higher price pressure and market risks. Furthermore, 60% of the institutions interviewed stated that there are hardly any possibilities to enforce contracts in Mozambique. In case of a credit default, the whole process of claiming the legal rights causes delays and leads to high costs for the FIs.

4.4.2 Risk mitigation strategies

In order to mitigate these risks, the FIs pursue a variety of strategies. An in-depth risk analysis and rating is usually a basic step to determine the interest rates for a credit. Due to the high risks connected to agricultural operations, the interest rates can be very high. Most agricultural borrowers were subject to interest rates of 28 to 30 % per year until 2011. In that year, the central bank halved the reference rate to 7.5 %, which led to a considerable drop in the interest rates that lenders had to pay to commercial banks[32].

Nevertheless interest rates for agricultural loans remain high (BTM around 18 % and no changes of MFI interest rates in June 2015) (AgriFin, 2012; de Vletter, 2015). The central bank increased the reference rate again in November 2015 to 9.75 %[33] and confirmed in mid-January that it would keep this rate throughout 2016[34].

32 The governor of the BM said in a speech on December 16, 2015 that from the total balance of credit to the economy, about 49 % was made available at lower rates to 15 %, whereas in 2011, only 14 % of the total credit stock was at rates below 15 % (http://www.bancomoc.mz/).

33 See http://www.bloomberg.com/news/articles/2015-12-14/mozambique-central-bank-raises-key-rate-to-highest-since-2012

34 See http://www.verdade.co.mz/tema-de-fundo/35-themadefundo/56528-banco-de-mocambique-mantem-politicas-monetaria-e-fiscal-que-os-empresarios-consideram-pouco-vantajosa-para-aumentar-a-producao

Therefore, it is clear that the FIs will have to increase their interest rates as well to stay sustainable.

BTM for example, increased their base rate from 15.00 % to 16.75 % in January 2016. For small farmers BTM has a subsidized rate based on the base rate minus 4 %. So in November farmers paid 11 % (15.00 %-4.00 %) and 2 months later 12.75 % (16.75 %-4.00 %). That is still a considerable increase and makes it much more difficult to farm. The high interest rates and enormous increases in such a short period of time make credits very often unaffordable for small- and medium-sized agricultural enterprises[35].

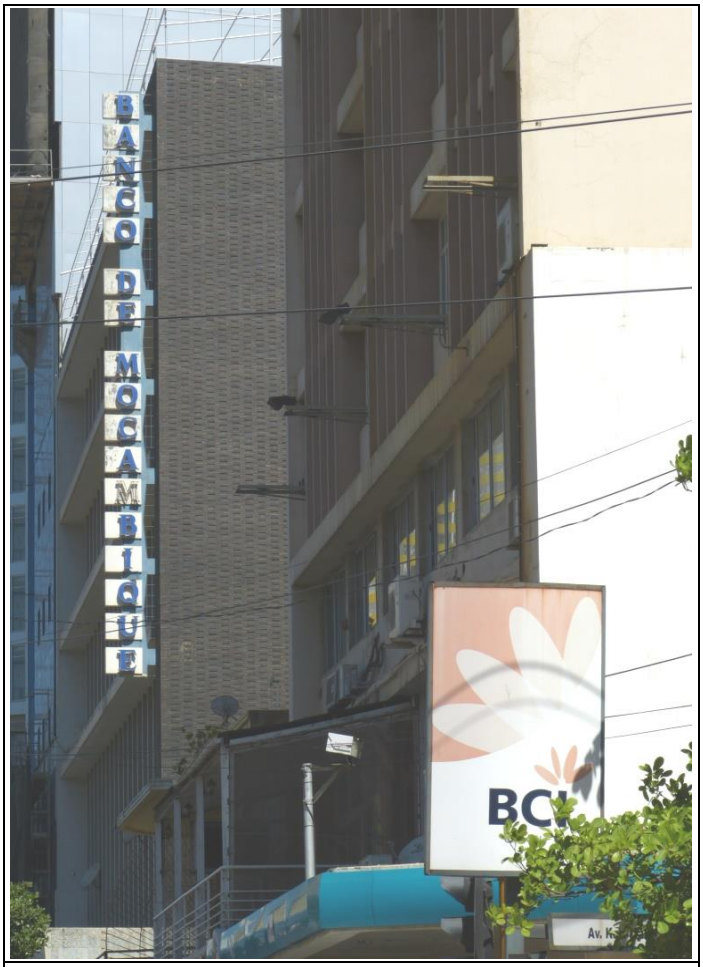

Image 4: Branch of BCI close to the Head Office of the Mozambican Central Bank – Bank's strategies focus on industry and urban areas

Photo: A. Demuth

In the case of BTM, most of their agricultural producer clients are medium to large scale commercial farmers and they pay the base rate + 1-3 %. Only the small farmers can borrow from BTM at the mentioned favoured conditions – an amount of MZN 1,200,000 for base rate minus 4 %. This means that 95 % of their agri-customers are paying full commercial rates and only 5 % of their agri-customers (these 5 % are all farmers) are paying base rate minus 4 %.

Furthermore, commercial banks focus their agricultural lending on businesses that have reached a certain level of formalization. All of them demand a wide range of legal documents like an official identification document, a NUIT (*Número*

35 In comparison, the average interest rate for commercial loans offered by the interviewed banks is 15.63 % (own bank survey).

Único de Identificação Tributária)[36] or a DUAT title for the land (see Box 2). Furthermore, loan applicants need to present financial track records, a bank history and a business plan to be eligible for a credit. Even though these requirements are not unusual when applying for a loan from a commercial bank, they represent a problem for the majority of agricultural actors, especially small- and medium-sized producers, because they operate at an informal level without any of the above mentioned documents.

Regarding assets that can be used as collaterals, the commercial banks set high requirements to protect their portfolio. Crops or movable assets are not accepted. In some cases, irrigation systems can be used as collateral but mostly in combination with leasing. Off-taker contracts with price arrangements can help to get a credit but the majority of the banks only accept them when the trader has a good reputation and a long history with the bank.

In contrast, the MFIs do not impose such high requirements. None of the MFIs interviewed requests a DUAT or a NUIT number. In some cases not even official identification documents are necessary. As collateral, they also accept animals and other movable assets in some cases as well as household goods. Thus, MFIs find other ways to mitigate risks. BOM for example grants credits only to groups of producers with a fixed off-take agreement.

Seven[37] of the nine FIs work with donor money (grants, credit lines, etc.) to lend to the agricultural sector, which minimizes their risks substantially. Other risk mitigation strategies mentioned during the survey included:

- Financing only less risky crops/ VCs (e.g. cashew, sugar cane, or tobacco)
- Credits in foreign currencies to reduce price risks
- Requiring an irrigation system to reduce weather risks
- Portfolio diversification

4.5 The role of the government and international donors

Important financiers for agricultural businesses in Mozambique are the Government of Mozambique (GoM) and the international donor community. The GoM has recognized the importance of the agricultural sector as key driver for economic

36 Taxpayer's ID number.

37 Moza Banco, BTM, Standard Bank, BCI, BOM, CCOM, Hluvuku-Adsema.

and social development and has implemented a variety of initiatives to support the further development of the sector, often with donor support. This includes a range of initiatives to increase the access to affordable capital for agricultural actors through credit lines, guarantee facilities, and other investment funds. Some examples are listed below (for a more detailed table on credit lines and guarantee facilities see Annex 3).

Besides these approaches there are also examples of other innovative instruments. These aim to increase the bankability of the borrowers by facilitating the access to the private capital market. Instruments include technical assistance for agricultural producers, guarantee facilities for lenders, and the AVCF instruments (see section 4.6).

Another approach used recently by the GoM and its international partners is equity financing. Through the Beira Agricultural Growth Corridor initiative and through the British firm AgDevCo financial resources are channelled into agricultural value chains in the geographic areas covered by the study.

Furthermore, there are also donor initiatives seeking to improve the framework conditions of the financial sector, financial inclusion and literacy as well as the extension of microfinance into rural areas.

4.5.1 Sponsored credit lines

- Fundo de Desenvolvimento Agrícola (FDA): A government FI (fund), subordinated to the Ministry of Agriculture and Food Security, aiming to provide agricultural businesses with direct credits. Some of the credit lines are offered through commercial banks (e.g. BIM and BCI) and credit cooperatives. The fund includes technical assistance for the borrowers.
- IFC and AFD via BCI (in general for SMEs).
- KfW installed a credit line for SSMEs and small agribusinesses via BTM (2008).
- Kuwait Fund, managed by BTM, distributed loans through microbanks and credit cooperatives.

4.5.2 Guarantee facilities for banks

- Private Sector Re-launching Programme (PRESP): A governmental sponsored credit line with an estimated amount of USD 10 million. This credit line is distributed through BCI, BIM and Moza Banco, allowing them to expand their agricultural portfolio. This programme also includes technical assistance for agribusinesses.

- AGRA: This multi-stakeholder and international initiative used to offer guarantees for credits for agricultural SMEs of a value of USD 10 million, channelled through Standard Bank which said it would lend up to USD 100 million. AGRA ceased this project after three years because only USD 1.5 million of lending had been issued. Standard Bank argued that the transaction costs were too high.[38] There is now another fund for larger companies, including those active in agriculture, the African Enterprise Challenge Fund.
- USAID via BOM, BTM and BCI.
- DANIDA via BTM.

4.5.3 Technical assistance and guarantee facilities for agricultural lenders

- AgroInvest: This programme is funded by DANIDA and managed by GAPI with a total amount of USD 35.6 million. One of the components of the programme is a guarantee fund that can be used by all banks and supports them to finance agricultural enterprises ("Agro-Garante"). Technical assistance is offered to the borrowers but not to the FIs.
- Building Markets: The NGO offers advisory services for up to 500 small and medium enterprises (SMEs) in getting access to markets and to finance. They offer assistance in formalizing and professionalizing SMEs and support the business owners in their loan applications. Furthermore, the SMEs are linked with the South African guarantee fund Thembani[39] that provides a guarantee for 75 % of the credit. Due to this guarantee, the interest rates of bank loans are lower than usually for a small business (10 to 15 % per year). This helps the businesses to get in touch with the financial sector and to create a financial record. So far, Building Markets does not focus on agricultural businesses but they have one agricultural specialist in Nampula who works with small agribusinesses in the area of seed production and of processing.
- USAID FinAgro programme: Aims to leverage private capital from investors and FIs by providing matching grants for projects that increase the competiveness in selected cash crops and other VCs. The fund has an initial volume of MZN 170 million and so far 30 projects have been approved.

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38 For more information about this AGRA and Standard Bank initiative, see http://www.agra.org/what-we-do/innovative-finance/; https://www.mcc.gov/; and https://www.mcc.gov/where-we-work/country/Mozambique; http://www.standardbank.co.mz/pt/Empresas/Empresas_2010/Agricultura/Financiamento.

39 Thembani International Guarantee Fund (TIGF) (http://www.tigf.co.za/).

4.5.4 Programmes to enhance financial inclusion and rural finance

- ProEcon: GIZ supported the Bank of Mozambique (BM) in the development of new mobile banking regulations as well as the creation of credit information agencies. Currently, the programme managers support the creation of an agent mobile banking network in rural areas.
- Financial Sector Deepening (FSD) programme: The main objective of this DFID programme is to facilitate financial inclusion in Mozambique especially in rural areas. Once the legal structure of the FSD programme has been established, KfW will become a funder.
- Development Assistance for Private Sector Agriculture Initiative (ADIPSA): The Danish funded programme supported agricultural SMEs through different projects. Amongst others, it helped MFIs to design credit lines for this target group and offered technical assistance and business skills training for producers through the NGO CLUSA.
- International Fund for Agricultural Development (IFAD): The specialized agency of the United Nations encouraged the emergence of a network of small micro credit intermediaries throughout the country. Many of the micro operators have gone bankrupt because they had too few customers. It can be assumed that interest rates were probably still too high for the producers that the loans could serve (only traders with direct sales).

4.6 Experiences with Agricultural Value Chain Financing in Mozambique

In the terms of reference, KfW highlighted the significance of Agricultural Value Chain Financing (AVCF) as a way to close existing financing gaps along the VCs of perennial fruits crops in Mozambique. AVCF is defined as "any or all of the financial services, products and support services flowing to and/or through a VC to address the needs and constraints of those involved in that chain" (Miller, Jones, 2010: 2). The study team examined existing AVCF instruments in Mozambique – especially in the selected VCs – and assessed their potential for financing fruit crop VCs.

Currently there are two Warehouse Receipts Financing projects under development in Mozambique. One is part of a government initiative to establish and consolidate a commodity stock market (*Bolsa de Mercadorias*) and the other is a pilot project implemented by USAID in cooperation with BOM. All the FIs expressed

their interest in Warehouse Receipts Financing and they see a huge potential in it. Nevertheless, it is questionable whether this instrument is adequate to further develop fruit crop VCs, since the majority of these crops are not suitable for storage and must be sold shortly after harvesting. This financing instrument is more relevant for staple crops that can be stored until market prices are high enough to sell profitably.

One AVCF instrument the study encountered in the selected VCs is lead firm financing. For example in form of two different block farming models. One is implemented by Westfalia in cooperation with the African Agricultural Development Company (AgDevCo) and another by the banana and lychee producer Malcom Clyde-Wiggins in Manica Province. In both cases smallholder farmers are provided with plots and they receive technical assistance as well as inputs. In the case of Westfalia, the farmers also gain access to finance and financial training.

Image 5: Women wearing promotional shirt of Millennium BIM – Commercial banks are using various marketing strategies to promote their business

Photo: A. Demuth

Financing agriculture through lead firms also poses problems. In order to implement such an instrument, strong VC actors are needed who can act as intermediaries. So far it is hard to find enterprises to fulfil this role. Furthermore, problems like side-selling or in the case of fruit crops the long wait until break-even and the high upfront-investments can be major obstacles. Moreover, supporting a lead firm in a VC can result in a monopolistic market position. In consequence, the lead firm can gain the power to define market prices and thus create a strong dependency for the producers. Nevertheless, many experts who were interviewed, including producers, are convinced that block farming models and other ingrowing schemes or the development of regional hubs to facilitate market access for smallholders are very promising concepts.

4.7 Challenges and potentials of agricultural finance in Mozambique

The main focus of the supply side analysis of this study was to identify enabling and disabling factors of agricultural finance in Mozambique and to find how different actors could close existing financial gaps in the future.

4.7.1 Challenges

Based on the interviews with several FIs and various experts, the study team analysed the problems and challenges of agricultural finance in Mozambique. The focus of the analysis lies on barriers which keep formal financing providers from expanding their offer to the agricultural sector. Figure 12 summarizes this analysis by the study team.

One of the major challenges for FIs to offer agricultural products and services lies in the direct costs to expand their business in rural areas. The low economies of scale, the high cost of monitoring the agricultural portfolio (e.g. costs of on-farm visits), the high operating costs (e.g. electricity, security, etc.) and a poor infrastructure in rural areas make it very costly to open new branches in rural areas. But in order to successfully manage and monitor a viable agricultural portfolio a certain proximity to the client is needed.

Also on the demand side there are a variety of factors that impede the financing of agribusinesses, especially those active in production. The majority of producers in Mozambique have not yet reached the level of commercial production. This is most evident in the fact that few small- and medium-scale farmers irrigate their land (see chapter 5). It restricts their ability to produce high quality crops and makes them extremely vulnerable to climate and weather risks. In consequence, FIs find the production risks too high.

Furthermore, most farms do not fulfil the requirements in terms of formalization and management that are needed to get access to credits from commercial banks. Many producers are not able to present business plans, financial track records, or official documents like a DUAT or a NUIT.

In order to mitigate the risks and to cover their costs, the FIs offer their financial products at high interest rates and only accept clients who are able to present collateral, such as bank guarantees, immovable assets, income from other economic activities, etc. With the exception of some medium emergent and large scale farms, producers are not able to offer these kinds of collateral. Furthermore, a range of external factors, such as the lack of medium and long term savings, the

possibility to make high profits in other sectors or the difficulties to legally claim their rights in case of default prevent FIs from financing the agricultural sector.

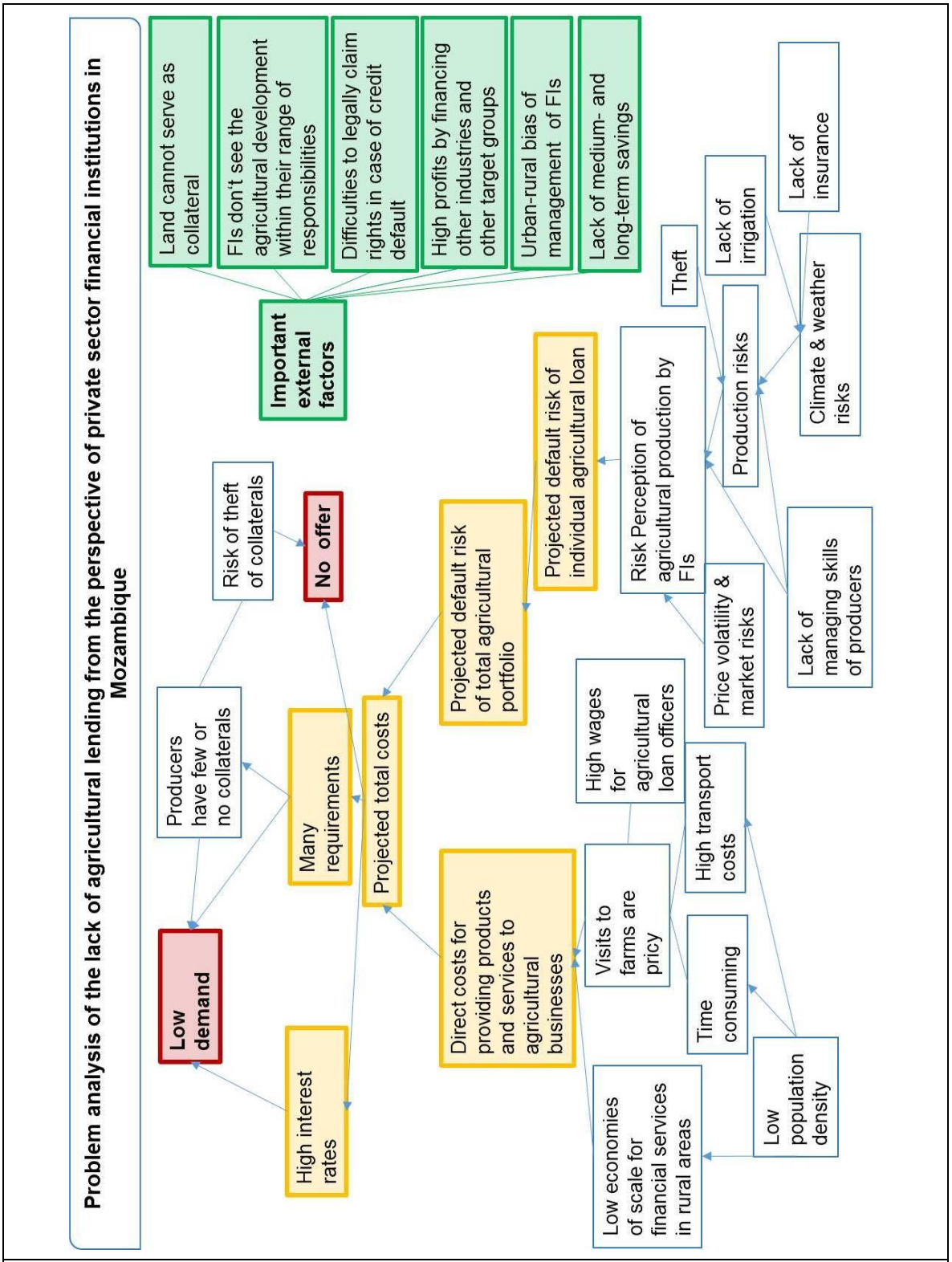

Figure 12: Problem analysis of the supply side

Source: Own illustration based on analysis

4.7.2 Potentials

Encouraging FIs to engage in the agricultural sector

To overcome the above mentioned problems and to close existing financing gaps, future interventions need to address some of these challenges. Providing FIs with subsidized funding is a potential instrument to encourage them to enter the agricultural sector without bearing the risks. As mentioned in section 4.5, a range of programmes follow this approach.

In the past, donor-funded credit lines and guarantee facilities seemed to have set incentives for commercial banks to expand their agricultural portfolio but so far they have not resulted in long-term or sustained growth with outreach (Miamidian, 2013: 25). Nevertheless, these instruments encourage FIs to invest in the agricultural sector and to stay in it even after initial challenges. However, some factors have to be considered for the implementation:

- Partner selection: The partner should want to expand its agricultural portfolio and have the institutional capacities to do so. Furthermore, the geographical coverage needs to be considered. FIs with a greater rural outreach are better placed to serve agricultural clients.
- Loan tenors: Identifying the right terms for the intervention is crucial. They should give the partner enough time to successfully build up their operations but also encourage the partner to invest their own money at some point.
- Technical assistance for the FIs: So far, the majority of technical assistance has been concentrated on the demand side, but also the supply side needs to be accompanied and supported. Supporting the increase in institutional capacities and the design of the right products and services helps to ensure the sustainability of the interventions.
- Bringing supply and demand together: Working with an intermediary that establishes links between borrower and lender can help to increase the outreach of the interventions. Furthermore, an intermediary could also support the borrower in the process of the loan application and help the FI to monitor its portfolio.
- Time restriction: Future interventions should carefully plan when to stop the subsidized financing, once the technical and institutional capacity development is progressing.

Supporting the microfinance sector

MFIs have the potential to finance small-scale[40] agricultural enterprises. They have experience with working in low income segments and have found ways to adapt their products and requirements to these segments. In this context, they accept collateral that is more tailored to the target group. For example, animals and other movable assets as well as household goods can be accepted as collateral. Furthermore, MFIs serve many clients in the informal sector so they do not require such a high degree of formalization.

In the area of agricultural finance, the MFI sector has shown some innovative approaches to tackling the above mentioned challenges. Especially BOM has demonstrated that it is possible to finance smallholders in a sustainable manner. In order to reduce operating costs, they started a mobile bank project with German cooperation[41]. This allows the bank to extend their rural outreach. BOM also found a way to reduce the default risk of their agricultural portfolio by working with solidarity groups. Such a group has to contribute 15 % of the credit volume and each member has to pay a share of that. Nevertheless the share of agricultural loans in their portfolio is very low and they admit that they only do it because donors subsidize the concerning credit lines.

The study team found that there are also limits to the potential of MFIs as agricultural finance actors. Many producers need long term financing products. The majority of MFI products and services are not designed to finance long-term investments. With an average interest rate of 4.4 % per month loans are not affordable for a long period. Additionally, the credit volumes are quite low (in the case of Hluvuku-Adsema the average loan balance per borrower in 2013 was USD 600) making bigger investments (e.g. for irrigation systems) quite difficult.

Making farmers bankable

Currently, there are many voices promoting the idea that making producers bankable is the right approach to tackle the challenges outlined above. Some go even further and argue that bankability is not enough but that making producers ready for investments should be the objective. This means that the first steps should be to give technical and financial assistance including measures that im-

40 For more details on farms categorization see section 2.2.2.

41 Banco Oportunidade de Moçambique received EUR 2 million to co-finance a business development project in order to build capacity to sustainably finance agriculture, particularly targeting smallholders. The projects aimed to train staff, develop new products, and establish new distribution channels through satellite branches and new mobile banks (IST Africa, 2010: 68).

prove the production and the productivity of the farming activity as well as the financial education and capacities of the producer. Building Markets (see section 4.5) gives a good example of how such a step by step approach could work and how the low income sector can slowly be linked with the financial sector.

5 Value chains of perennial fruit crops in Manica Province

5.1 Perennial fruit crop production

Mango, banana, and citrus have been grown in Manica since colonial times due to the favourable climatic conditions. Other perennial fruit crops like avocado, lychee, and macadamia have gained popularity more recently among local producers, because they anticipate selling opportunities. As mentioned in chapter 2, the study team explored in detail the mango and lychee VCs, and to a lesser extent the citrus VC.

Mango is one of the most traditional fruit crops in the province. Two thirds of all private households have at least one mango tree in the backyard. Most are degenerate hybrid varieties, which make it difficult to sell the produce. Markets demand certain pure varieties, e.g. Kent or Tommy Atkins for export, Malcorada for domestic trading, and Quinta Aurora for processing. Many small producers do not even know which variety they actually have on their land. A much bigger obstacle for selling mango abroad is the fruit fly[42]. An over-supply of mangos results in a very low price level on the domestic market. Therefore the willingness of producers to invest in mango plantations is limited.

Citrus fruits have also been cultivated in Mozambique since colonial times. Similar to the case of mango, the trees are mostly degenerated hybrid or of an unknown variety. Most produced citrus fruits are Valencia and Nevel oranges, Marsh Star Ruby grapefruits and Satsumas mandarins. Citrus fruit production was very popular and lucrative in the 1990s, but markets deteriorated, prices fell severely and many businesses collapsed. Nowadays, smaller producers dominate Mozambican citrus fruit production.

Lychees, in contrast, are rather new in the region. The most common variety is the Madagascan type, which is appropriate for export, national trading, and for processing. There is a window of three weeks in November in which Mozambique is currently the only country which can sell this fast rotting fruit. Lychee can be harvested even earlier than in Madagascar, its neighbouring competitor. Lychees prices meet the peak at about USD 10 per kg at the European auction houses during that period.

42 For more information see section 5.2.2.

The domestic price for lychee is also quite high, compared to other fruits. Lychee is very popular among Mozambican consumers. Due to these various good sales options and high returns, investments in lychee production are highly attractive for producers.

5.2 Partial assessment of value chains of perennial fruit crops

It is important to consider the whole VC to assess strengths and weaknesses and in order to identify entry points for financial assistance. Figure 13 shows the architecture of the VCs of perennial fruit crops in Mozambique.[43]

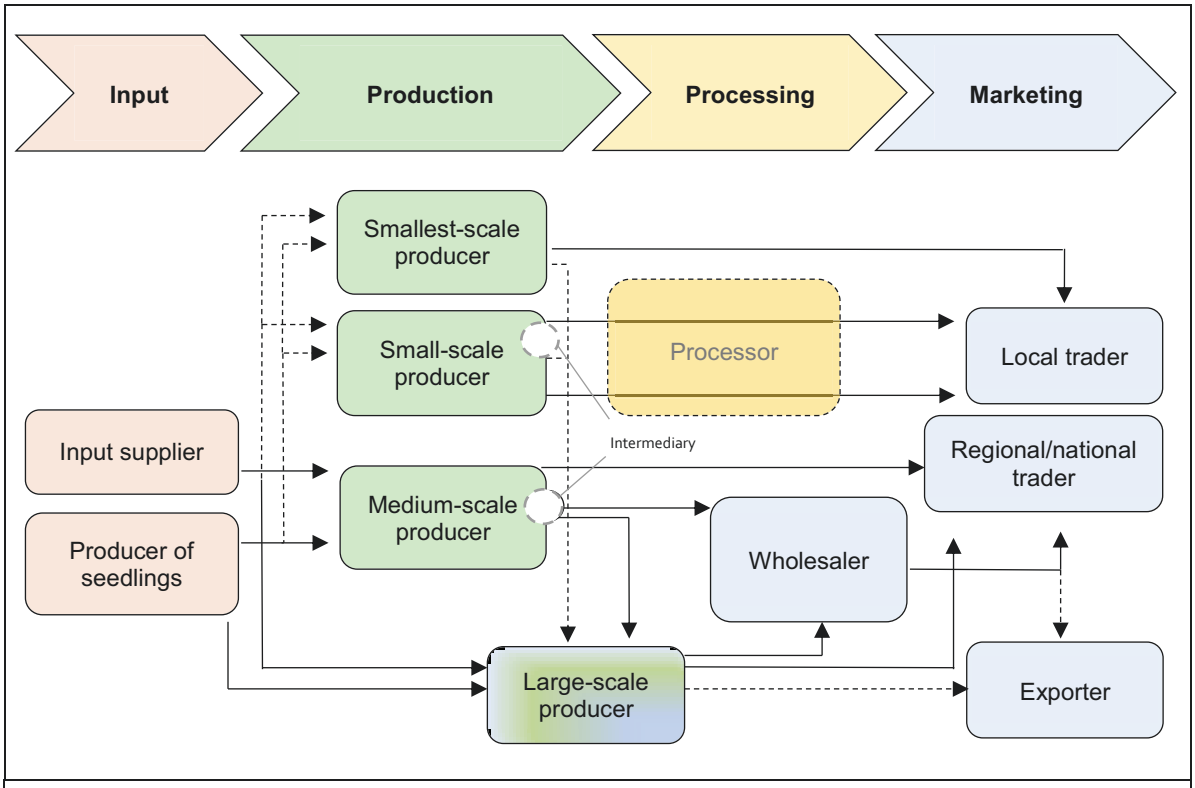

Figure 13: Fruit VCs in Mozambique

Source: Own illustration based on analysis

43 For the detailed version of the architecture of the mango VC, the lychee VC and citrus fruits VC see Annex 4.

5.2.1 Actors of the value chains

At input level, suppliers of quality seedlings, fertilizers and pesticides are important VC actors. Most of the small-scale producers do not buy from them. Rather they produce their own seedlings and do without fertilizers and pesticides, which can have negative implications on quantity and quality of the fruit crops. The findings seem to show a correlation between the area of cultivated land and the strength of the connection between the farmer and the input suppliers: the more land, the more connections. This could be because bigger farms have more funds to buy the fertilizers and pesticides or that the owners are more aware of the benefits of fertilizers and pesticides (for more details, see section 5.2.2).

The fruit crop is sold to traders, processors, larger producers, and to end-consumers. Smallest- and small-scale producers in Central Mozambique have links to local traders, e.g. traders on informal spot markets in urban centres or owners of simple shops or stalls on the street. But this marketing channel is not the only one. The farmers also sell produce on their own behalf on the farm itself or on local markets to the end-consumers. This is particularly the case for mangos.

Medium-scale producers have more options to sell their products, namely to local, regional (Beira in Sofala Province) or national traders (e.g. in Nampula Province and Maputo City and Province) and to wholesalers. Usually, they sell their first quality products to intermediaries at the farm gate and deliver the second and third quality fruit crops to local markets. Only if they have the means of transport, can they bypass intermediaries by directly accessing regional markets and wholesalers. Until now, only commercial farms with more than 50 ha land under permanent cultivation have access to export markets.

In the case of the lychee VC, some farms function as lead firms. They use outgrower schemes and integrate small-scale farms in the surrounding area. Some examples are the South African enterprise Westfalia, Malcolm Clyde-Wiggins, and Peter Waziway[44]. The outgrowers working with Peter Waziway are organized through various farmers associations.

The *Agência de Desenvolvimento Económico da Província de Manica* (ADEM), a local development agency that installed a juice factory, also used the organizational structure of farmer associations to collect raw material for the production. However, ADEM's juice factory was closed down and the study team could not identify any

44 Peter Wasiway is one of the owners of Nata Rapara Lda and Serra Choa Fruta Lda.

greater processor in operation referring to the two VCs. Although the two medium-scale mango farms (owned by Jac Smit and Pinto Matavelo) have the technical equipment to produce dried mango, their facilities are not operating. Moreover, Compal+Sumol, a Portuguese firm located near Maputo City, produces juice but uses imported instant pulp due to instable quality and quantity of local production.

Relevant governmental institutions are the Ministry of Agriculture and Food Security (MASA, ex-MINAG) and its administrative entities at the provincial level (the *Direcção Provincial da Agricultura e Segurança Alimentar*, DPASA, ex-DPA) and district/local level (*Serviço Distrital de Actividades Económicas*, SDAE) levels. The SDAE's core service regarding agriculture is to provide extension services to the farmers. The Centre for Promotion of Agriculture (CEPAGRI) links the public and private sectors.

5.2.2 Potentials and challenges within the selected value chains

Potentials and challenges for production

There are several potentials of cultivating perennial fruit crops. Their pre-harvest treatment requires only a low-level working capital. After installing a new plantation, intercropping, e.g. with beans or maize, is possible during the first three years. This is of special interest for smallholders because they can make a living out of these supplement crops until the trees yield fruit. Concerning the market situation, there is a high demand for perennial fruit crops both on domestic and on export markets (República de Moçambique, 2009; Kaiser Associates, 2006; World Bank, 2005).

However, there are several challenges that have to be tackled in order to increase production and productivity:

- The use of fertilizers and pesticides is currently very low. Just 31 % of the farmers interviewed use fertilizers and only 23 % use pesticides. Particularly smallest- and small-scale farms use hardly any inputs. High costs for fertilizers, the lack of technical knowledge and the lack of knowledge about the proper application of the inputs limit their use. Moreover, due to the risk of crop failure, and in the case of mango the low value of the product, the application of fertilizers is not considered profit-yielding.
- The limited availability of quality seedlings, together with the lack of knowledge about how to handle them (e.g. balancing the hydric stress) and about the different varieties preferred in the various markets, represent crucial problems for the farms. Most producers do not know the exact varie-

ties of fruits that they are growing, and they have degenerated hybrid varieties. This impedes their use for purposes other than local and regional consumption, which is especially the case for traditional perennial fruit crops like mango and citrus.

Image 6: Grafting (left) and growing seedlings (right) – Self-made seedlings often lack quality

Photos: J. Bilhlmayer-Waldmann

- Appropriate irrigation is the main requirement to produce juicy and healthy fruit crops and to increase productivity. But many farms (43 %) do not use any form of irrigation (see Figure 14). Of those farms which irrigate their crops, 18 % use watering cans and a further 21 % use motor pumps fuelled with diesel. These are intensive in labour and capital respectively. In addition, the water pollution of the Púnguè river system through mining (especially illegal activities) is a serious problem for Manica's fruit producers. Water pollution impacts negatively on the quality of the fruit produced and requires very expensive irrigation systems.

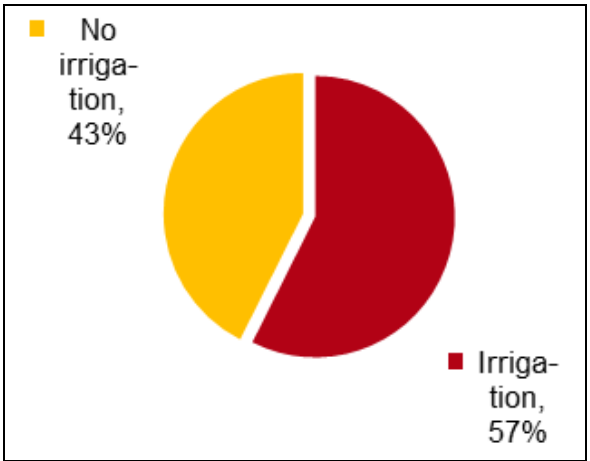

Figure 14: Use of irrigation system

Source: Own illustration based on analysis

- Regarding the framework conditions, the power supplies from the electricity grid very sparse. In Manica Province only about 12 % of the population have electricity (International Renewable Energy Agency, 2012: 31). Of the

surveyed farms, only 2 % have access to the national grid, 24 % use other energy sources (diesel generator: 14 %, solar panels: 10 %). 80 % of surveyed households do not have access to any type of electricity. This lack of electricity is a major constraint on agricultural production. Energy is essential for irrigation and using diesel is very expensive.

- Moreover, many farms suffer greater crop losses due to droughts (35.4 %), thefts (29.1 %), diseases (25 %), and uncontrolled burning (18.7 %).
- Some farms do not manage to sell their entire crop (Figure 15) mainly for two reasons. Firstly, almost all farms rely on non-family seasonal labour during the harvest period but they do not have the means to pay for sufficient labour during the whole period. Secondly, many producers live in remote areas where the roads are not paved and public infrastructure is nearly inexistent (see also Box 3). Most of them do not own appropriate means of transport to deliver to the markets. Correspondingly, a lot of fruit become mouldy.

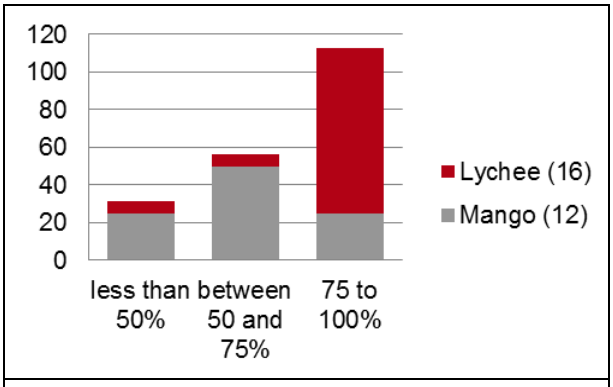

Figure 15: Amount of yield sold (in %)

Source: Own illustration based on analysis

- Significantly more mango producers than lychee producers complain that only a small part of their fruit crop is sold (see Figure 15). The following aspects can explain this situation: Firstly, current market prices for mango are very low and thus profitability is questionable. The insecurity about whether earnings will be adequate to meet the costs for labour and transport limits the willingness to invest in mango cultivation. Secondly, lychees can be sold more profitably and thus justify investment in harvest and transport. Thirdly, although there are several actors (Westfalia, Malcolm Clyde-Wiggins, Peter Waziway) who support the farmers with the organization of the transport, there are still challenges in organizing adequate transport.
- A problem related to the access to markets is that many producers do not know where best to sell their produce. In consequence, they mostly sell at the lower-priced local spot market or to an intermediary at the farm gate who sets unfavourable prices
- In the case of mango, current market prices are very low. The farm survey revealed that mango producers obtain only USD 0.08/kg during high sea-

son and USD 0.12/kg during low season. According to an official of the local SDAE, farmers prefer to "process" their mango trees to charcoal rather than harvesting the fruits.

- Also valid for both mango and citrus fruits is the advanced age of various plantations, many even dating back to colonial times. Harvested fruits are less juicy and the yield is very low. Due to the current unfavourable price levels, investments in the replacement of old trees by seedlings are unattractive for producers.

Box 3: Challenges in infrastructure for development of perennial fruit crop VCs

Infrastructure in rural Mozambique is still a constraint on the development of perennial fruit crop VCs. One major limiting factor is the limited availability of electricity. Estimates about the national access to the power grid are at 18 %, while about 11 % have access to off-grid supplies. Furthermore, the electrification rate differs considerably across the different regions. In the central region, to which also the province Manica belongs, only about 12 % of the population can access electricity (IREA, 2012: 31). Due to the lack of access to the national network, the energy needed for the irrigation must be generated by diesel at high costs.

A second limiting factor is the underdeveloped network of good roads in Mozambique. The country has 30,464 km of roads of which 21 % are paved in 2013 (INE, 2014: 67). During the rainy season, it is difficult to use many of the unpaved roads. Therefore, producers in remote areas face problems, for example when needing inputs. Additionally, the road connections between cities in the north and in the south by roads are very limited. The sparse north-south connections cause difficulties and high costs for transporting fruit crops from production sites to regions in Mozambique where the fruits are not produced. As a consequence, the poor network of roads limits access to domestic markets.

The gaps in the infrastructure cause high costs and limit the development of the VCs of perennial fruit crops. All the experts and producers mentioned that there is a "need for better roads, cheaper electricity, and better logistics to make Mozambique's economy competitive". The excellent road conditions, short distances and modern farming methods in neighbouring South Africa makes it challenging for Mozambican smallholders to compete with large-scale South African producers (UNDP, 2012).

- The main challenge for mango producers is the fruit fly, first detected in 2007. The prevalence of the invasive fruit fly *Bactrocera invadens* throughout the country impedes exports to neighbouring countries like South Africa, which banned the import of Mozambican mangos and citrus fruits. Methods exist to combat the fruit fly (e.g. pheromone traps) and – if certified by local DPASA – treatment is recognized by South African authorities, but the costs involved are high. Post-harvest treatment would overcome the export ban as well, but is hardly available in the region.[45] National institutions (DPASAs and the National Plant Protection Organization) are implementing programmes to combat the fruit fly but these have not had any impact so far (Serafina, 2010: 19).

Image 7: Pheromone trap to combate the fruit fly – Chemicals are too expensive for small-scale farms

Photos: J. Bihlmayer-Waldmann

- Regarding lychee export markets, one challenge is the need for an unbroken cooling chain of one degree as well as the need for rapid transport to the final markets in order to maintain the pink-red skin colour – an exclusively aesthetic requirement which is crucial for good international sales.
- Another challenge that lychee producers face is the recruitment of enough skilled labourers during harvest time. As lychee has to be harvested by twisting carefully in order to avoid tearing the skin, seasonal labour has to be trained (FAO 2005b).

45 For more information on processing fruits see following section.

- Some of the challenges identified by the study team were also verified through the farms. Within the survey, the study team asked the interviewees what they needed to improve the production and productivity of their farms (multiple answers allowed): More than 75 % of the small- and medium-scale farmers cited irrigation and seasonal labour as their main needs whereas more than 75 % of the smallest-scale farmers indicated that quality seedlings would enhance their yield.

Potentials and challenges for processing

There are three main advantages in processing fruit crops. Firstly, processing is a further option for the farms to market their products. Secondly, when the fresh fruit is out of season or the market for fresh fruit is saturated, processing can avoid crop losses. Thirdly, processing is a promising option to bypass the fruit-fly problem. But several challenges remain for processors and lead firms in the selected VCs:

- Due to the inconsistency of the amounts of fruit delivered, it is difficult for a processing firm to produce constantly.
- Delivered fruits often do not have the constantly high quality that is required to secure the quality of the end product.
- Most inputs needed for the processing (e.g. packaging material) have to be imported. This increases the costs of processing and the price of the final product, making it hard to compete with cheaper imported products. Correspondingly, mainly foreign fruit products (e.g. juice, dried fruit) dominate the domestic markets.
- Establishing a new brand demands high upfront investments for market analysis as well as profound knowledge of technical issues and hygiene standards.

Potentials and challenges for lead firms

Lead firms practicing outgrowing schemes or operating as a hub for fresh fruits can offer an alternative marketing channel for smallest- and small-scale farms. But the following challenges have to be considered when establishing outgrowing schemes or bloc-farming-models:

- Most inputs have to be imported (e.g. packaging material, agricultural inputs etc.). This raises the costs of the final product and makes it hard to compete with large-scale producers from South Africa.
- Providing the infrastructure for outgrowing schemes and installing regional hubs for fresh fruits requires higher levels of long-term financing.

Potentials and challenges for marketing

With regard to the marketing channels, the high demand on both domestic and export markets for several weeks each year is a great potential for the production of perennial fruit crops. However, several challenges remain with regard to the markets:

Image 8: Local spot-market in Chimoio in Manica Province – Most small-scale farms cannot access markets for larger quantities

Photo: L. Köster

- Prices on local markets – still the prevalent option for many farms – tend to be low due to high seasonal production throughout the region.
- Small- and medium-scale farms can hardly access markets for larger quantities like regional or national markets or wholesaling due to high demands on quality, uniformity standards, consistency of delivery, volume and fruit size, weight, shape, and packaging.
- These requirements are even higher when it comes to export markets. For lychees, for example, an unbroken cooling chain of one degree is required to maintain the colour of the pink or red skin. Furthermore, in the mango production, farmers have to apply a costly treatment of the cultivated land in order to combat the persistent fruit fly problem.
- Lack of access to adequate information on the marketing options is another bottleneck for farms to gain access to markets for larger quantities.

Potentials and challenges for public services

The GoM has recognized the above mentioned potentials of perennial fruit production and runs various initiatives to take advantage of them. However challenges also remain for public institutions:

- The lack of coordination and communication between the participating institutions limits the extent to which the various public programmes can complement each other and create synergies. For example, IIAM distributed quality citrus fruits seedlings throughout the country, as the FDA does with lychee and mango seedlings, but there has not been any consultation between the institutions.
- The coverage of public extension service provided by the SDAE is very low. In 2012, only 6.6 % of Mozambican farms were visited. This is not surprising since statistically, one rural extension worker has to serve approximately 800 farms. Extension workers also lack specific fruit crop knowledge. One out of ten medium-scale farms showed initiative by paying for private extension services from abroad.

Potentials and challenges for standardization and certification

When it comes to processing or export of fruits, standardization can secure stable quality of delivered fruits and thus contribute to gaining the confidence of potential buyers. In a national context, the *Instituto Nacional de Normalização e Qualidade* (INNOQ) is responsible for setting standards for agriculture in general and also for fruits (e.g. good practices, hygienic standards); it also offers technical assistance to who is interested.

National and international certification could be relevant to gain access to processing and export markets. Citrum (*Citrinos de Umbeluzi*), for example, a larger-scale producer of citrus fruits in Maputo Province, managed to sell its fruits on foreign markets by certifying them through international Global GAP Label. Jac Smit, a large-scale producer in the Sussundenga District, has the permission of South African authorities to deliver South African processors after presenting relevant certificates from the regional DPASA.

But two main challenges hinder the broader application of standards and certificates:

- INNOQ standards are voluntary and their fulfilment costly for the producers. As the domestic consumer does not demand such high quality, producers do not see the need to comply with the standards.
- International certificates demand high production standards and involve bureaucracy, thus raising production costs. Only larger farms which produce on the necessary scale can bear these additional costs.

5.2.3 Perennial fruit crop production – a good deal for Mozambique?

It is clear that the attractiveness of perennial fruit crop production for farms in Mozambique depends strongly on the varieties and categories of the fruit crop and on price developments and future sales opportunities (see Table 5).

Whereas mango and citrus fruits are characterised by low prices and limited marketing options and are thus not very attractive for investments, lychee sells at a higher price and can serve niche markets, which makes it very attractive for producers to invest in. Malcolm Clyde-Wiggins, one of the largest lychee producers in the research area, puts it in a nutshell: "Lychee is gold and banana a good backup which yields several times a year."

Table 5: Attractiveness of perennial fruit crops along the VC

	General conclusions	Fruit-specific conclusions
Input	▪ Fertilizers and pesticides can increase the productivity. ▪ The correct treatment of seedlings of certain varieties improves productivity and creates new marketing options (e.g. higher-value markets, processing, export).	Mango and citrus ▪ Access to quality seedlings is needed.
Production	▪ Irrigation can secure production of high quality fruits and better access to markets ▪ Profitability of production is strongly reduced when diesel pumps are used for irrigation. ▪ Financing means for seasonal labour is needed. ▪ Producers cannot transport their products due to lack of adequate transport (poor quality of the roads, inadequate vehicles, etc.).	Lychee ▪ Investment in skilled seasonal – labour is needed. ▪ Central/collective cooling storage allow smaller-scale producer to export. Mango ▪ Pheromone traps combat the fruit fly problem. Mango and citrus ▪ Smallest-scale farms in some cases produce mango or citrus as a personal extra and not for commercial purposes. ▪ Mango and citrus: Old trees have to be replaced by seedlings.
Processing	▪ Lack of adequate supply chain and of qualitative and quantitative constant deliveries hinder the further development of processing industry.	
Marketing	▪ Due to a lack of market information mainly smallest- and small-scale producer sell their fruits only on the "low-priced" local market. ▪ Many of the producers cannot produce the quantity and quality required for the export.	Lychee ▪ Producers are willing to invest in lychee production due to high value and sales forecast. Mango and citrus ▪ Low value and marketing difficulties of crops prevents producers from investing in production.
Services	▪ Producers have little or no public technical assistance to improve production and productivity. ▪ Producers derive more profit from public programmes when institutional activities are coordinated.	Mango and citrus fruits: ▪ Standardization and certification can help to access export and niche markets.

Source: Own illustration based on analysis

The producers of perennial fruit crops need investments (e.g. irrigation and labour) which could also be used for their other crops. Farm production has to be seen as a whole and producers' investment needs should not be deduced from only one crop.[46] In addition, some medium-scale producers (e.g. Malcom Clyde-Wiggins, Peter Waziway, Jac Smit) and large-scale producers/trader (e.g. Westfalia or Lonrho Fresh) have the potential to act as a lead firm within the VC to guarantee market access for smaller-scale farms. Appropriate AVCF-instruments[47] could be block farming or outgrowing schemes.

Besides the results presented above, the survey revealed further findings on the producers and their financial activities that are presented in the following two sections.

5.3 Focussing on production

After having looked at the various segments of the VCs, this section will concentrate on the farms and the farmers. The resulting insight into the nature of Mozambican farms and the links between the farmers and the financial sector allows the study team to design and to adapt financial products and services according to the Mozambican reality.

5.3.1 Relevant aspects for financing farms

Diversification of production and income sources

Most of the farms surveyed applied diversification strategies to mitigate risks related to the agricultural production. Firstly, most farms cultivated three to seven crops. As this is a strategy to mitigate production risks and to finance new investments with the earnings from the various crops, an evaluation of farms from a business perspective needs to take all crops or at least the most relevant ones into consideration.

Secondly, another prevalent form of risk mitigation is the diversification of income sources. Almost half of the farmers who were interviewed had two income sources. Farmers named regular employment, short-term jobs as well as pensions as a second income source. In particular, regular second incomes are important

46 For more information on diversified farm production see section 4.3.1 and Annex 5.

47 For more information on AVCF Instruments see section 2.3.

when evaluating farms for creditworthiness. These were mostly associated with farmers of small- (22 %) and medium-scale farms (23 %).

Image 9: Production field of medium-scale farm in Gondola District – Financial actors should take the diversity of farms' crop production into account (here: citrus fruits, vegetables, maize, and banana)

Photo: J. Bihlmayer-Waldmann

Age structure of the farmers

In the survey, the age structure of the heads of the farms was remarkable. Most farm owners were of advanced age – on average age 52 years. Older farmers tend to be less open to innovations and have difficulties in obtaining loans from banks. Moreover, hardly any young farmers were encountered during the field research. This might be an indicator that young people perceive farming and the working conditions as unattractive. Therefore, there is a need to respond to the difficulties of elderly farmers and to offer young people a lucrative role in the agricultural sector.

Formalization of the business

The lack of formalization of the farms is an important challenge that has to be tackled to facilitate the linking of the farms with the financial sector. The survey revealed that just 40 % of the farms possess the DUAT. The figure is even lower for smallest- (25 %) or small-scale farms (30 %). The percentage of farms that are registered is even lower (smallest-scale: 11 %, small-scale: 22 %, medium-scale: 50 %). The lack of formalization means that the majority of the farms do not meet the requirements of commercial banks or other entities for financing products and services.

Assets of the farms for collateral

When looking at assets which may serve as collateral, there are considerable differences between the various groups of farms. Only some medium-scale farms possess tractors and/or cars, whereas houses were common for small-scale and medium-scale farms. In summary, most farms do not have the appropriate collateral required for a potentially successful credit application.

5.3.2 Farmers and their links to the financial sector

Farmers' financial activities

40 % of surveyed farmers had bank accounts, mainly at BIM[48]. Just a few farmers had their bank accounts at BOM or BCI. However, according to a study commissioned by USAID, only 15 % of population in Manica Province has bank accounts[49]. At first sight this seems to contradict the findings of the survey. Several reasons are conceivable.

Firstly, agricultural businesses may be more likely to open bank accounts. Secondly, farmers with a second source of income may be more likely to have bank accounts. Thirdly, small-scale farms form the large majority of the agricultural sector but may not be represented in the study properly. This is due to the propul-

48 It is worth keeping in mind that that Millennium BIM was established in 1995 through a strategic partnership agreement between the Mozambican State (as majority shareholders of *Banco Comercial de Moçambique*, BCM) and the Portuguese bank *Banco Comercial Português* (now Millennium bcp) for the takeover of BCM and BIM. BCM as state owned bank had a monopolistic position in the Mozambican bank landscape. Based on this BIM has maintained its prominent position with a lot of branches in urban and rural areas in Mozambique for several years providing financial products and services to a high number of public institutions and private clients. This is one of the factors that explain the high proportion of farms with bank accounts at Millennium BIM.

49 CLUSA-PROMAC baseline assessment (November 2013) conducted by ELIM Serviços, quoted from USAID (2014: 36).

sive sampling scheme which was applied following the requirement defined by the ToR for focusing the research on such farms that are already in the given VCs or have the potential to enter in these VCs.

Moreover, it is important to mention that there is no evidence about the use of bank accounts. However, the existence of bank accounts in the case of the surveyed farmers shows that there is already a link between the financial sector and the interviewee farmers.

Savings groups play a crucial role for farmers, too. It is remarkable that the share was highest for medium-scale farms (33 %) and small-scale farms (25 %) whereas only 20 % of the smallest-scale farms were organized in savings groups. With the farmers' statements in mind, it can be concluded that smallest-scale farms might not be engaged in savings groups due to a lack of funds for saving activities.

A quarter of the interviewed farms had received a loan in the previous 10 years. Of these farms, only four received credits from commercial banks. The other farms received loans from governmental institutions (e.g. FDA and FDD), NGOs, or friends. The reasons for not receiving credits from commercial banks are manifold. The non-formality of businesses and the advanced age of farmers are reasons for banks to deny credit applications. Furthermore, interviewed farmers, especially small- and medium-scale farmers, often lack business plans, records of their past financial flows, identification cards as well as valid collateral (e.g. cars, tractors) which are essential requirements to apply for credits. Due to the lack of access to financing, it is more common for farmers to invest in agriculture using their agricultural or other income sources than formal financial products and services.

Mobile payment is very rarely used among the interrogated farmers. Only 5 % of the farmers used mobile payments. Half of the people who do not make such payments were not aware of the services m-kesh or m-pesa for mobile banking. It is likely that the low use of mobile payment services is closely related to the age of farmers. However, as the coverage of the rural area by banks is very sparse (see chapter 4), mobile banking might be an important tool for strengthening the VCs and therefore needs further support.

Farmers' views of the financial sector

Several statements of producers in the survey and interviews reflect a rather negative view of the financial sector. Farmers commonly criticise requirements for collateral, etc. as excessive and interest rates charged by commercial banks as too high. Therefore, they consider credits to be out of reach.

In many cases, smallest-scale and small-scale farms do not apply for credits from commercial banks due to their concern to lose their belongings, if they are not able to pay back their loans and interest rates. This leads to a strong reluctance of both groups of producers to apply for credits at commercial banks.

5.4 Targeting the producers by farm type

Interventions that aim to stimulate investments in fruit crop production should be adapted to characteristics of the farms. The analysis has revealed that within the initially drawn categories smallest-, small- and medium-scale farms there are differences regarding their needs and potentials. Therefore, the study team compiled a typology of the farms based on the various qualitative and quantitative data and findings. Additionally, the typology facilitates the identification of a) farms with a high potential to increase their production through investments, and b) farms which can take a lead role in the development of VCs.

The table below describes the farm types and indicators. For the detailed version see Annex 5.

In this regard, the main conclusions are the following:

- Within the category of small-scale farms, the size of permanent cropped land is still one of the key distinguishing factors to categorize small-scale farms as emergent or not.
- The distinctive features of small-scale emerging farms, in comparison with small-scale farms, are mainly the better professionalization, management skills and technical knowledge as well as formalization.
- The distinctive features of medium-scale emerging, in comparison with medium-scale farms, are the possession of collateral, irrigation systems and innovation affinity besides the above mentioned criteria.
- Some medium-scale farms are more likely to fulfil some of the criteria and can therefore potentially play a leading role in fostering the VC (e.g. through the establishment of processing, standards and the integration of small-scale farmers).
- The study team interprets the farm types as tendencies without fixed boundaries. They should help to define in more detail the target group for future financial cooperation and to design interventions according to the various financing needs.

Table 6: Farm types

	Target Group			
	Small		**Medium**	
Indicator	Small	Emerging	Medium	Emerging
Size of land under permanent cultivation in ha	≤10	>3 - ≤10	>10 - ≤50	
Formalisation of their business				
▪ DUAT	No	No / Yes	Yes	
▪ NUIT	No	No / Yes	Yes	
Irrigation, varieties and use of inputs	No		No / Yes	Yes
Appropriate Varieties	No / Yes	Yes	Yes	
Use of inputs	Low	Medium	Medium	Medium/ High
Usage of public extension services	Low	Low/ Medium	Medium/ High	Low
Collateral	(Conventional house)	Conventional house	Conventional house Maybe: car, tractor	
Management skills	Low	Low/ Medium	Medium	Medium/ High
Financial literacy	Low	Medium	Medium	Medium/ High
Bank history	No	Might receive(d) financing Might have bank account	Might receive(d) financing Might have bank account	Might receive(d) financing Might have bank account
Market access	Predominantly local market	Predominantly local market (wholesalers, lead firms)	Various marketing options	
			Stronger connection to local markets	Strong connection to markets of bigger quantities

Source: Own illustration based on analysis

5.5 Needs along the VCs

The following table summarises the findings and conclusions of this chapter by transforming the challenges and potentials of the various VC actors as well as the relevant characteristics of the farmers into needs along the VC. Table 7 serves to prepare the formulation of recommendations in the following chapter. It shows that the investment needs depend on the farm type and that the various segments of the VC require technical assistance. Annex 6 present the needs with regard to specific production factors.

Table 7: Needs of VC actors

Production	**Financing needs** ▪ Short-term financing to hire seasonal labour during harvest for small-, small-scale emerging and medium-scale farms → Costs: Minimum wage agricultural worker ca. USD 75 per month for 48 hours/week ▪ Short/medium term financing for inputs and quality seedlings in rather small amounts to produce quality fruit crops for small- and small-scale emerging farms → Costs: USD 2.20 /seedling, 625 trees/ha: USD 1,375 ▪ Medium/long-term financing for irrigation to secure production and improve quality of fruit crops for small-scale emerging and medium-scale farms → Costs: depend on irrigation system: USD 1,500 – 4,000 /ha, maintenance: ca. USD 500 /year ▪ Financing to formalize their business (DUAT and NUIT) for all farm types → Costs: NUIT is gratis but small-scale farms need help in applying for it, DUAT: ca. USD 480 /ha ▪ Financing to mitigate the risks of crop failure through droughts, theft, diseases, and uncontrolled burning (e.g. agricultural insurance, construction of a fire barrier) for small-scale emerging, medium- and medium-scale emerging farms **Technical needs** ▪ Improved knowledge about the appropriate use of fertilizers and irrigation systems as well as on the treatment of seedlings small- and medium-scale farms ▪ Improved information on marketing and financing options especially for medium-scale farms ▪ Improved management skills for small- and medium-scale farms **Sectoral needs** ▪ Attract younger people and women through different training and education programmes

Processing	**Financing needs**
	▪ Long-term financing in order to
	  ▪ Establish processing units of fruit crops to diversify the market channels (e.g. juice, jam, dried fruits)
	  → Costs: strongly depends on type and capacity of processing machine.
	  – Machine for slicing mango: USD 7,000, capacity: 500 kg/hour
	  – Machine for drying mango: USD 25,000 for 7 m² - USD 90,000 for 56 m²
	  – Machine for producing pulp or juice: USD 198,000, capacity: 10 tonnes/day
	  – Machine for producing bottles: USD 22,500 each bottle-size
	▪ Gain information about new markets and to finance marketing of new products/brands
	Technical needs
	▪ Improve information about different markets
	▪ Improve management skills to secure robust business plans

Lead firms	**Financial needs**
	▪ Long-term financing in larger amounts in order to
	  ▪ Establish pack houses, hubs or rural distribution centres
	  → Costs: strongly depends on the type of investment, capacity and existence of infrastructure.
	  – Cultivating 200 ha and buying fruits of small-scale farms Westfalia invested USD 3 million for a pack house
	  – Packaging material: USD 1.50 /kg
	  – Machine for grading: USD 17,000, capacity: 800 kg/hour
	  ▪ Foster and support lead firms, e.g. the investment of medium emergent farmers with impact on small-scale farms (e.g. market access through block farming or outgrower schemes, quality products through production of high quality seedlings)
	  → Costs: strongly depends on type of investment.
	  – USD 10,000 /ha for new plantation (includes land preparation, fertilizer, seedlings, irrigation)
	  – Estimated costs for planned outgrowing scheme of Malcolm Clyde-Wiggins on 700 ha avocado and lychee plantation: USD 5 million
	Technical needs
	▪ Improve information about different markets
	▪ Improve management skills to secure robust business plans

Marketing	**Technical needs** ▪ Improve information about different markets **Strategic needs** ▪ Foster stronger linkages between traders and producers
Govern-mental institutions	**Financing needs** ▪ Financing to employ more public rural extension workers **Technical needs** ▪ Improve information about the various financing options for the various farmers and other VC actors ▪ Improve fruit crops specific knowledge of public rural extension service
Source: Own illustration based on analysis	

6 Main conclusions and recommendations

Based on the findings of this study, three recommendations are made for future interventions of the German financial cooperation with Mozambique, as well as three further recommendations for technical assistance to shape the economic and financial environment for agricultural businesses.

The study team came to the conclusion that one size does not fit all agricultural businesses in VCs of perennial fruit crops in Mozambique. Each type of VC actor should approach or be approached by a different type of financing provider (see Table 8).

Table 8: Different types of VC actors as potential target groups and suitable types of financing providers

	Saving groups	MFIs	Financial intermediaries	Commercial banks	TA*
Input supplier			X		X
Producer					
- small	X	X			X
- small emerging		X			X
- medium			X		X
- medium emerging				X	X
Trader & exporter					
- small		X			X
- medium			X	X	X
Processing			X	X	X

* TA: Technical assistance

Source: Own illustration based on analysis

In line with this conclusion, each recommendation addresses different types of VC actors (different in size of business and position along the value chain). Accordingly, future interventions should be implemented with different kind of partners such as different types of FIs.

The first recommendation (see section 6.1.1) is a special credit line for medium-sized producers, traders, processors and other actors of the VCs of perennial fruit crops.

The credit line would be distributed by commercial banks, whereas the second type of credit line proposed would be promoted through MFIs (see section 6.1.2). Both recommendations include accompanying measures in the form of technical assistance for the partner FI in order to improve financial services and to ensure that the financial products are promoted adequately to reach the target group. Within the microfinance approach, KfW also addresses small-scale emerging producers through a technical assistance component.

The third recommendation to KfW and its partners (see section 6.1.3) focuses on irrigation, which the study team identified as a bottleneck for both agricultural production of high-quality fruit crops as well as for the financial inclusion of micro, small and medium scale producers in Mozambique. To increase the use of irrigation in the production of fruits, the study team recommends the implementation of a matching grant project with financial assistance by KfW.

However, these recommendations and the relevant tools have some limitations. To integrate farms into the VCs of perennial fruit crops and for sustainable linking of the agricultural sector and the financial sector, the study team formulated supplementary recommendations for technical assistance interventions (see section 6.2).

6.1 Financial assistance

6.1.1 Credit line for agricultural Value Chain development

Conclusions from previous analysis

There are no specific financial products available in Mozambique for the VCs of perennial fruit crops, even though various experts see the high potential of these VCs for poverty alleviation, exporting and agricultural development in the country. This contradiction can be attributed mainly to the difficult conditions under which agricultural actors do business in Mozambique. The majority of FI representatives view the Mozambican agricultural sector as highly risky. Financial products are needed with a development focus and patient capital.

In the selected VCs of this study, VC actors claimed that they do not have access to finance due to demanding requirements and high costs for lending. Capital is missing for processing, trading, transport, storage and production (i.e. mecha-

nization). Existing business plans for processing units are not yet supported by FIs. Therefore, investments are needed as well as long-term financing, in particular for perennial fruit production.

Objectives and target group

The credit line should fill a gap by offering long-term lending to medium-scale emerging farm businesses and to other VC actors (e.g. processing, marketing, trading, etc.). A long-term social impact can be achieved through the development of the VC itself and of markets for the agricultural products of smallholders. Consequently, the long-term objective of the proposed credit line is to strengthen the links between the VC actors and to facilitate financial flows within the VC. To achieve this goal the credit line should target VC actors that could act as so called change agents. This means that credits should mainly be granted to innovative business ideas that do not only benefit the individual business but support the integration of other VC players and therefore strengthen the VC as a whole (e.g. a processing plant with smallholder inclusion).

The credit line should be opened for any type of agricultural VCs and not exclusively for perennial fruit crops. Even though fruit crops have a high potential for poverty alleviation it is still a niche market in the agricultural sector. Therefore it would not be economically attractive for commercial banks to offer such specific credit line due to low economies of scale. Nevertheless the conditions for lending to perennial fruit crop VC actors need to be adapted to their specific needs. Due to the long period from planting trees to harvesting fruit, this mainly concerns credits granted to producers of perennial fruit crops.

Type of intervention

It is recommended that the credit line offers medium to long-term credits (three to eight years, depending on the specifics of the crop and the project). Possible projects that can be financed are investments in irrigation, processing units, packing houses, or projects fostering different types of AVCF mechanisms (e.g. lead firm financing through block farming, contract farming, etc.). Therefore, the volume of the credits has to be very flexible, starting from a volume of USD 30,000 up to USD 2 million (see Annex 6, example calculations).

The interest spread between costs of operations and client's payments should be similar to the interest spread in other areas (e.g. mining). To ensure the desired impact and outreach of the proposed credit line, strong monitoring mechanisms need to be implemented to evaluate the performance of the partnering FI. The

disbursement of the funds to the partner FIs must be based on a sound performance evaluation and should therefore be paid out in several tranches. In case of an insufficient achievement of the agreed indicators, the next tranche would not be disbursed until countermeasures were implemented.

The partners should not only be monitored but also supported in improving their institutional capacities in terms of agricultural expertise. Therefore, the study team recommends a technical assistance component for the partner FIs. This component needs to include measures to improve their institutional capacities regarding the design of tailored financial products and services for the target group and the assessment of agricultural businesses.

In order to ensure the desired outreach of the proposed credit line, the study team recommends working with an institution that serves as intermediary between the commercial bank(s) and the target group. This intermediary should facilitate the contact between borrower and bank, and offer support to monitor the business operations of the clients (e.g. a medium-sized emerging farm).

Institutional framework

The choice of the right partner FIs is a key factor to guarantee the successful implementation of the credit line. Possible partners need to be examined regarding their motivation to expand their agricultural portfolio, their institutional capacities, their outreach in rural areas and their liquidity. During the field research, the study team identified the following FIs as possible cooperation partners for KfW: BCI, BIM, Ecobank, BTM and Moza Banco[50]. Technical assistance can be provided by a pool of consultants which are selected after a call for proposals. As potential intermediary between FIs and agricultural actors, the study team identified Miruku and Technoserve, but a call for proposals is strongly recommended.

50 This proposal is based on interviews with representatives of the FIs and experts. The study team did not do a comprehensive institutional analysis of the FIs mentioned. Further investigations are needed. Moreover the list of possible cooperation partners is not exhaustive.

Threats and opportunities

Table 9: Threats and opportunities of the recommended credit line	
Threats	**Opportunities**
Lack of links with the target group due to highly urban concentration (→ high costs to expand operations in rural areas)	Banks are enabled to expand their business in the agricultural sector without risks
Possible reluctance of banks to promote the credit line due to possible negative impact on market prices for financial products and high bureaucracy	Products have accessible conditions for agricultural actors and help them to create a financial record
Source: Own illustration based on analysis	

6.1.2 Agricultural microfinance programme

Conclusions from the previous analysis

The analysis of the production and financing needs of small and medium-scale producers cultivating perennial fruit crops showed that small producers wish for financing mainly for inputs, labour and irrigation. The first two needs could be met through micro-credits with short-term repayment modalities. This way, small producers can be enabled to become more involved in the VCs of perennial fruit crops without taking too high a risk by asking for a large credit. Small producers expressed their concerns about not being able to pay back their debts to a commercial bank which does not make allowances for the challenges and problems that might occur during the years of planting, growing and later harvesting of the fruit crops. But fruit crops that have a domestic market and potentially an export market could significantly increase the livelihoods of the farming families. Therefore, a careful but proactive investment strategy of the farmers should be encouraged by the government and donors. Similar to the credit line for commercial banks, the microfinance programme should not exclusively target producers of perennial fruit crops but should be opened for other producers as well. This helps the borrowers to diversify their production and helps them to create a broader income base.

MFIs have proved to be valuable development partners for interventions targeting micro, small and medium enterprises (MSME) both globally and in Mozambique. Those included in this study's bank survey also expressed strong interest in becoming partners of KfW in a future intervention in agricultural fi-

nance in Mozambique (with the exception of Banco Oportunidade[51]). MFIs have experience in building strong relationships with their clients which are mainly from the informal economy. Usually they do not ask for collateral and secure their credits through alternative guaranties like pooling clients into solidarity groups, and taking into consideration linkages to the community or associations. Furthermore, MFIs have experience in reaching out to informal financing providers like Accumulated Savings and Credit Associations (ASCAs). These links could be fostered and expanded to make use of the savings of small-scale farmers to their benefit.

Image 10: Lychee farmers in Báruè District – Microfinance Providers are more adapted to financial needs of small- and medium-scale farms

Photo: A. Demuth

Objectives and target group

The objective of this programme is to embed a direct financing facility into a system of technical assistance to both the agricultural and the financial sector. The expected outcome of such a programme is that farmers are made "bankable", MFIs become multipliers of agricultural finance, and the production of perennial fruit crops is boosted in promising areas of Mozambique.

51 See section 4.4

Type of intervention

The programme suggested by the study team provides an implementation in several phases. The first phase is designed for approximately three years, with a clear orientation for a second or third programme phase to ensure the sustainability of the established mechanisms and proposed institutional changes. During the first phase, the programme is based on three pillars (see Figure 16).

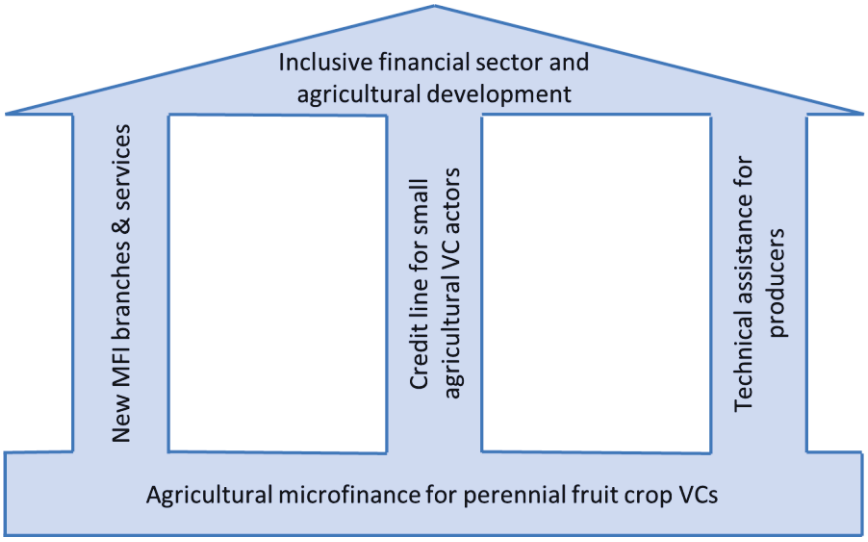

Figure 16: Pillars of the Agricultural Microfinance Programme

Source: Own illustration based on analysis

1st pillar: New MFI branches and services

The first pillar consists of financial support for the partnering institution (MFI) to open a new branch in a rural area of major agricultural activity, preferably in Manica or Sofala Province, due to a high concentration of perennial fruit crop producers in these provinces. In order to ensure the sustainability of their operations in the new community, the MFI should be obliged to start offering savings products and services.

Furthermore, the MFI should receive technical assistance to install sustainable saving schemes and to attract clients for this purpose. It is preferable that the MFI starts to connect with mobile banking systems.

2nd pillar: Microfinance credit facility for agriculture

The second pillar consists of a credit line for the formalization of businesses and the production (of perennial fruit crops) by small and emerging farmers as well as for MSMEs in down-stream and up-stream activities within the VC. Microloans are provided for a) asset-financing (irrigation, etc.), b) formalization of the farm (for receiving an ID, NUIT, and DUAT) and c) working capital (labour, electricity).

The loans for perennial fruit crops are granted to individual farmers or to associations but not to solidarity groups. Since fruit crops are not staple crops too few farmers might want to invest in them at the same time, which would impede the formation of such groups. Women and young farmers should be eligible with priority.

The recommended average loan value for individual producers for investments and for on-going production costs is from USD 100 to USD 1,500 in total with a term of four to eight months. Associations are able to get loans for up to USD 2,500 with a maximal term of 12 months. The rather short maturities can be explained by the fact that the proposed programme is using microfinance products (usually three to six months, but up to two years for well-known, trustworthy clients), which are normally not designed to finance larger investments. However, to make investments in irrigation systems possible it is recommended to also offer medium-term loans with a term of up to 24 months and a volume of up to USD 6,000 (see Annex 7 for a calculation of financing needed for an irrigation system and Table 7 concerning needs of VC actors in section 5.5).

The small producers need to repay the loan through other farm activities or off-farm revenues. This approach secures that the client builds up a loan record with the MFI, and thus trust is created between them and the producers.

The loans need to be adapted to the needs of farmers, e.g. flexible repayment modalities or bulk repayments only after harvest.

3rd pillar: Technical assistance for producers

The third pillar consists of technical assistance for the agricultural clients in management, agronomic and financial skills, for example training in accounting, financial literacy, and agricultural techniques.

Institutional framework

The programme can be affiliated to MASA, in a consortium with the Ministry of Economy and Finance, within the context of the Rural Finance Support Programme (RFSP) implemented by the GoM.

Experts in agricultural finance should advise MASA in building such a programme and to provide technical assistance to the MFI. Possibly German bilateral cooperation development workers or CIM returning experts could be used to support the MFI in the first two to three years of the programme in capacity building, organizational development and innovating rural and microfinance in Mozambique.

The study team recommends working with one or two selected MFIs. The choice will depend on further due diligence studies. The two community-based institutions CCOM and Hluvuku-Adsema are definitely worth consideration. BOM is well-established in rural areas, also in Manica Province and has experience with AVCF, but their interest in expanding their agricultural lending is very low at the moment due to high losses in the past (see section 4.4). Socremo is a sound institution well-established in rural areas but also with limited interest in small-scale farmers.

Threats and opportunities

Table 10: Threats and opportunities of the recommended microfinance programme

Threats	Opportunities
On-going or even increased dependence on external funds	Connecting informal financing providers and MSME producers with the formal financial sector
Big gap between producer-friendly KfW credit line for perennial fruit crops and other financial products of MFI → Potential for conflict between farmers	Lower requirements regarding collateral simplifies smallholder inclusion

Source: Own illustration based on analysis

6.1.3 Finance-for-irrigation programme

Conclusions from the previous analysis

Irrigation of plots is important for a year-round, constant production, independent from rainfall. The climate and weather risk, in particular drought, is minimized. Representatives from FIs all mentioned irrigation as a basic requirement for financing agricultural production and as an important step towards commer-

cial farming. This is particularly true for the production of perennial fruit crops, since they need much water to develop high-quality produce.

The farm survey showed that very few of the small and small emerging farms had irrigation systems in place, while the slightly bigger farms did. This supports the conclusion that irrigation is one of the prerequisites to develop a small farm into a medium-sized farm. Furthermore, it proves the ongoing need for more support in this area in addition to existing programmes from donors like USAid's FinAgro or the World Bank's PROIRRI programme. These programmes are successful but they only reach out to a few farmers and not in particular to fruit crop producers.

In summary, small-scale producers do not have access to formal finance because they do not irrigate their land, but are in need of financing to install irrigation systems requiring relatively high initial investments. As mentioned before, producers are afraid to lend such sums, when they do not have any experience with commercial farming.

External support in the form of subsidies for irrigation systems would help to bring agricultural producers to the next level. Additionally, in the medium term it prepares small emerging producers for future interaction with formal FIs.

Image 11: Micro-jet sprinkler under a lychee tree – Irrigation is crucial for producing quality fruit crops

Photo: A. Demuth

Type of intervention

Support is needed for a better water infrastructure, better water quality in agricultural areas with mining activities, and for financing individual irrigation systems. A first component should cover the first two challenges by ensuring investments in water infrastructure, including canal and weir construction or flood protection dykes.

For the second component, the study team recommends heavily subsidized support to individual emerging small-scale producers in the form of matching grants. In this case 70 % of the investment is provided in form of a grant and 30 % is paid by the producers themselves.

Technoserve found in the FinAgro programme that commercial banks in Mozambique are willing to lend producers the full amount of the remaining 30 % of the investment. To foster this in the KfW intervention, selected commercial banks should be welcomed as partners in the programme.

Objectives and target group

Most VC actors as well as poor rural people are small producers. Therefore, direct support to small emerging producers has a high poverty-reducing impact.

Institutional framework

Component 1 should be implemented through KfW's cooperation with the GoM in the area of infrastructure. Component 2 could be developed in cooperation with GAPI.

An alternative could be to channel additional financial means into the FinAgro or PROIRRI programmes and to develop additional instruments in cooperation with the implementing bodies to address perennial fruit crop producers.

Threats and opportunities

Table 11: Threats and opportunities of the recommended finance-for-irrigation programme

Threats	Opportunities
Viability of irrigation systems (when it is too expensive and large in the individual farm context)	Long-term adaptation to climate change-related droughts
Crowding out of private initiatives, e.g. adapted financial products by formal FIs	First interaction of farmers with commercial banks, when the 30 per cent share is backed through a loan
Destroying the market price for irrigation systems by reducing the willingness of farmers to pay market prices (without subsidies)	Increase in agricultural production by smallholders (more rural employment, more food security, poverty alleviation, etc.)

Source: Own illustration based on analysis

6.2 Technical assistance

6.2.1 Insurance products and services for small and medium farmers

Conclusions from the previous analysis

The risk of crop failure is part of agricultural production. Climatic characteristics and low irrigation levels put production at high risk. Theft, fire and pests also lead to the loss of yield and therefore jeopardize the income of the producers. Banks rate the climate and weather risks as very high when lending to agricultural producers. Due to the important role production risks play in the provision of credits, risk mitigation mechanisms like insurances may help to increase the provision and use of credits.

Another risk factor that could be eased through insurance, namely personal/life insurance, is the age structure of producers. Even though no bank mentioned the age of farmers as a default risk, interviews with farmers suggested that age negatively affects the provision of loans. The average life expectancy of Mozambicans is 53.8 years[52] and the average age of the farmers the study team

52 Life expectancy of male Mozambicans (most farmers are men), in 2015: 51.7 years (female Mozambicans, 55.9 years) (INE, 2010; www.ine.gov.mz).

met in Manica Province is 52 years. This means there is a high statistical probability that farmers who take a medium to long-term credit will die before the debt is paid off. It is a risk for the FIs as well as for the bereaved family members.

These factors suggest that in the long run an insurance system can improve conditions for rural lending significantly. However there are no institutions providing micro-insurance and agricultural insurance in Mozambique yet. Furthermore there is a lack of statistical data including long-term data on weather and crop-related data necessary to provide weather-index based agricultural micro-insurance.

Objectives and target group

The intervention aims to improve the conditions for the provision of insurances for small and medium producers by supporting governmental institutions, private insurance providers, and financing providers.

The following products should be envisaged:

- weather-index based micro-insurance (cost-effective, targets micro and small businesses)
- micro life insurance for farmers
- bundles of insurance and loan

All farmers and MSMEs in the VCs can benefit directly from this intervention, when using insurance. The development of offers for life insurance could be of particular benefit for the current, rather aged farmers.

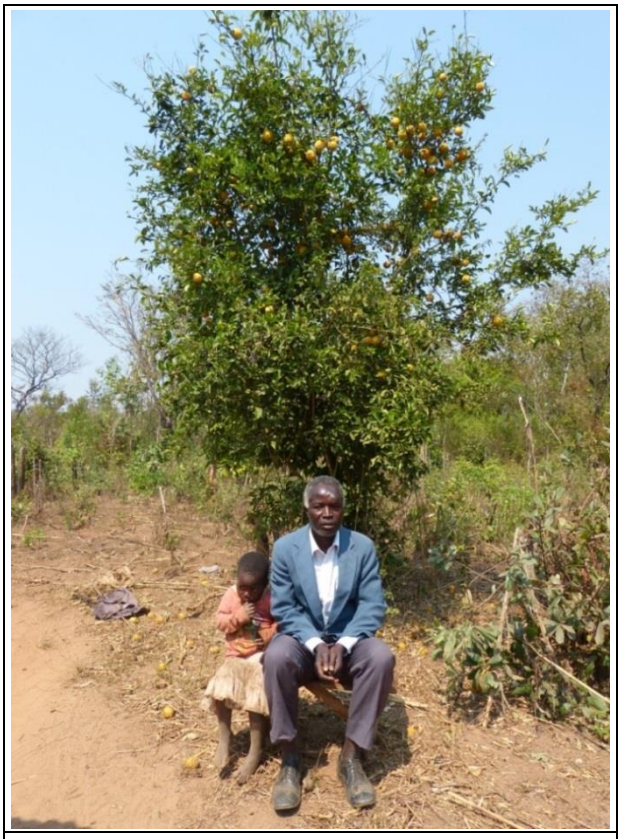

Image 12: Fruit producer with his daughter in Sussundenga District – Small-scale farms have to cope with heavy yield losses due to droughts, lack of labour force, and transport.

Photo: A. Demuth

Intervention

The establishment of an insurance system calls for long-term efforts by governmental institutions, donor initiatives as well as the private sector.[53] Firstly, the regulatory framework regarding the provision of agricultural insurances needs to be strengthened.

Insurance providers should be encouraged to design weather-index based insurance products. Beforehand, long-term data on weather in certain geographical areas should be collected and expertise is needed to analyse crop-specific water needs and resilience parameters.

The availability of valid long-term data about weather and crop yields, for example, is essential to provide weather-index based insurance, which have been successful in various African countries (FAO, 2005a). Weather-index based insurances are rather easy to introduce because they use weather data and not the assessment of damage. To implement this kind of insurance, more weather stations have to be established. Furthermore, research in yield prediction needs further support.

Other insurances may mitigate the risks of fire, pests and theft. However, these insurances are more costly to establish, since damage assessment is required.

There are various examples in the African context in which micro-insurances were successfully distributed. In Uganda, for example, input suppliers linked the sale of inputs to micro-insurance policies which cover yield losses in case of droughts. Furthermore, input supplier Syngenta and its partner Kilimo Salama developed an effective system which bundles input supply with crop loss insurance and makes use of mobile payment services to lower the costs significantly (Toro, 2014). Linking insurances to bank loans is an interesting approach that can lower the risk of credit default due to crop loss and increases farmers' resilience to shocks. However, banks need specific training in designing such products to make them viable and beneficial for farmers.

53 It is important to underline that the involvement of the public sector is critical to ensure that agriculture insurance programmes meet the needs of small-scale farmers while ensuring the sustainability of financial providers (For more information see World Bank, 2010: 137 f.; Mahul, Verma, 2010: 3 f.; Skees, Hazellr, Miranda, 1999: 4 f.).

Institutional framework

The GoM should be supported in ensuring a favourable legal framework for the establishment of further insurance companies and specific agricultural insurance products.

The existing insurance companies could be supported by developing bundles of life insurance and loans. To cooperate with Millennium BIM would be crucial for a large impact, since this company is the largest commercial bank and the biggest supplier of a wide range of insurance products and services.[54]

In order to build a database for future climate- and weather-based agricultural insurance policies, KfW should work with the Institute of Agrarian Research of Mozambique (IIAM). The public research institute could play an important role in a future intervention as this institution can provide the relevant information for designing adequate insurance packages.

6.2.2 Spreading information on agricultural financing

Conclusions from the previous analysis

One of the conclusions of this study is that there is not only a financing gap but also an information gap between the FIs and the VC actors. An advisory service network and an information database/platform is a possible solution. Both services can, for example, provide information in line with the conclusion that each actor has different financial needs that should be addressed by a suitable financing provider (Table 8). However, many producers do not have access to information about adequate financing solutions.

The study revealed that the coverage of bank branches in rural areas is very low, which hampers the access of farmers to banks. Farmers frequently do not have information about financial products and services on offer, their conditions and requirements. Furthermore, the vast majority of farmers does not have any experience with loans or the financial sector and therefore do not understand the formalities of credit applications. They often lack knowledge on how to get the required documents such as a NUIT or how to develop a comprehensive business plan which is obligatory when applying for a credit. Without these documents and management skills it is hardly possible to receive a loan from commercial banks.

54 http://www.commonwealthofnations.org/sectors-mozambique/business/insurance_and_reinsurance/, accessed 17.12.2015

Objective and target group

The gap between the financial and the agricultural sector will be bridged. The agricultural MSMEs and farms will know where to get information on financing possibilities for their business strategies, including financing providers, their agriculture-specific products and services as well as their requirements. The intervention addresses small and medium sized emerging farmers, which have an interest in applying for loans and improving their management skills.

Intervention

The intervention consists of

a) delivering information about financial products to farmers;

b) advising the farmers on adequate financing providers including their financial products and services for their individual farming business.

The information about financial products can be gathered in a database. This should contain not only information about credit lines of banks, but also information about relevant institutions providing services like loan guarantees.

In fact, not just providing information, but also linking farmers with the relevant institutions is one focus of the intervention. Furthermore, the training of farmers in relevant management skills to fulfil loan requirements is integrated in the overall approach.

Institutional framework

The intervention should strengthen or complement structures which are already in place. The advisory service network can be attached either to the SDAEs or to the agent banking network that GIZ is currently building up. These rural extension workers for financial services would be trained and stay in touch with a consulting firm or NGO like Building Markets. This helps them to stay up to date and to react adequately when clients (producers) have specific questions or face certain challenges.

6.2.3 Support young people

Conclusions from the previous analysis

Interviews with farmers have shown that most of them are elderly and male. Hardly any young people or women formally run farming businesses.

Institutions like ISPM qualify young people in professional farming. However, graduates often lack financing opportunities to start their own business. To in-

crease the share of young people in agriculture, the adaptation of financial products to the needs of young people is required.

Image 13: Student of the ISPM on testing field – Mozambican agriculture needs young people

Photo: A. Demuth

Objectives and target group

The main target group is obviously young professionals with an interest in starting agricultural businesses or with innovative ideas in the agricultural sector. The programme particularly fosters the integration of women, who are highly underrepresented so far.[55]

Increasing access to finance is not just relevant to farmers who are already operating a business. It is also important to provide knowledge to young people

55 In the formulation of such a programme it is recommend to draw lessons learned and good practices from the implementation of the Agro-Jovem programme, an initiative of GAPI seeking to stimulate the emergence of young entrepreneurs along the agrarian value chains (For more information see http://www.gapi.co.mz).

about the opportunities to get involved in the agricultural sector. This will help to increase the overall youth employment in Mozambique. It could boost agricultural production if more young people recognize agriculture as a business opportunity.

Type of intervention

Various measures are needed to facilitate young people to start their own business. Firstly, existing educational institutions will be supported to complement their educational programmes by technical knowledge on producing perennial fruit crops as well as management skills. This could be done in "incubators" and mentoring programmes.

Image 14: Business incubator centre at the ISPM, Manica Province – Educational instuttions play a crucial role to promote young farmers

Photo: A. Demuth

Secondly, young farmers should be linked to banks or the private sector to get access to financing, to land and inputs for production. This should be accompanied by financial literacy training.

Providing professional advice to educational institutions to foster linkages to the financial and the private sector is one part of this intervention.

The other part is the expert advice of banks and the private sector. Banks are counselled on how to shape financial products to make them attractive for young professionals. The private sector is instructed on how best to integrate recent graduates. Block farming approaches have been promising so far and may be appropriate.

Institutional framework

All institutions which provide agricultural training are of interest for this programme. Furthermore, the relevant financing providers, in particular banks and lead players in the VCs like Westfalia should be addressed.

6.3 Further ideas to support access to finance in rural areas

In addition to the main recommendations presented, there are other promising ideas that could improve farmers' access to financial products and services. These are worth consideration when looking for solutions. It is recommended to develop these opportunities further for the local context.

6.3.1 Support the use of mobile finance and e-transactions platforms solutions

Mobile banking and e-transactions platforms are seen by many experts as a promising way to lower costs in rural areas for financial products and services[56]. This is especially true for a country like Mozambique; however, the study showed that the use of mobile banking or mobile payment and other e-transactions platforms is still not very common in the observed groups of farmers. This indicates that there is a need to put more effort into the dissemination of appropriate technology as well as in increasing awareness for such services.

Various examples in other countries and also in Mozambique show that the use of mobile payment and banking can boost financial inclusion in rural areas (FinMark Trust, 2012; FAO, 2015; Mattern, Tarazi, 2015; World Bank, 2014b; BM, 2013). Connecting rural population to the financial sector through mobile solutions reduces the transaction costs for financial intermediaries trying to reach small and informal businesses in rural areas, and this may strengthen confidence in financial institutions, improve financial literacy and provide incentives for investments in

56 For more information see FAO (2015: 32), Grossman, Tarazi (2014), IMF (2015b: 34), Mattern, Tarazi (2015), World Bank (2011; 2013b: xxxvi, 96; 2014: 25 f.; 2016: 91 f.).

their businesses. In some countries, mobile banking systems are even up-graded to mobile payments services which serve in particular small-scale farmers.[57]

6.3.2 Opportunities to implement AVCF

The implementation of AVCF mechanisms can facilitate farmers' access to inputs, technology and knowledge. Lead firms in VCs can integrate AVCF mechanisms by pre-financing and providing such items. Nonetheless, in order to establish AVCF mechanisms in value chains it is necessary that the VC is well-developed, particularly in terms of markets. The lead firm should also have an interest in increasing production with the support from other producers. In the study, the team identified various actors particularly in the Lychee VC. Westfalia, Malcolm-Clyde Wiggins and Peter Wasiway (see section 5.2.1) were identified as having potential to offer AVCF in their businesses to farmers. Westfalia for example may provide inputs like fertilizers seedlings or even irrigation on loan. Additionally, they could also offer training courses for farmers. After harvesting, Westfalia takes control of transport and marketing and is therefore able to get their returns for the loan. For this service Westfalia could charge a 10 % fee to cover their costs. The physical and financial flows as well as the sharing of information and knowledge could be registered with mobile devices. It is even possible that Westfalia provides smartphones, giving the farmers the possibility to get engaged in mobile payment systems.

The exact design of such mechanisms still needs to be refined in cooperation with the businesses. Stakeholder meetings should be arranged to ensure that interests of potential partners are considered. Information exchange between VC actors has also been identified as a driver of VC development. The financial support could be provided by specific loans which support the implementation of AVCF in promising VCs.

6.3.3 Considering other financing opportunities

Finance of plantations of perennial fruit crops is not just limited to banks. Other opportunities may be convenient for farmers in order to finance at least a part of their investment for growing perennial fruit crops. Given the difficulties encountered in obtaining financial support by banks in Mozambique it is advisable to look as well at other finance possibilities.

57 Examples of Guatemala, Kenya, Nepal, Philippines, Rwanda and Uganda (see World Bank, 2013a: 43 f., 58/59; 2013b: 96; 2014b: 26 f.).

In the case of production of perennial fruit crops and irrigated systems there are two specific finance opportunities which need to be taken into account. The payment for carbon storage under the Clean Development Mechanism (CDM) in tree plantations and the funding for climate-smart agriculture are promising finance mechanisms. Payments for captured carbon have been proven partly successful in providing some funding for plantation of perennial fruit crops. This has been made possible through the CDM mechanism by the United Nations Framework Convention on Climate Change (UNFCCC)[58]. A project in Malawi by Plan Vivo calculates with 29 tC/ha for a mango orchard[59]. Assuming that a tonne of carbon can be traded for a price of EUR 8, 1 ha of mango could generate EUR 232. Even though that money is just sufficient to finance partially a plantation, it can make the difference. Especially, when banks would consider such assets as a security for credit default, farmers might increase their access to credits by financial institutions through an improved asset base.

Funding by institutions like the International Fund for Agricultural Development (IFAD), which support climate-smart agriculture, can also be a promising way to channel money to support plantations of perennial fruit crops. However, other factors like sustainable and adapted management, as well as environmental conservation etc., play a bigger role and need to be integrated into projects which would like to receive special funding. One of the main arguments for climate-smart funding is the need for irrigation in fruit production. Irrigation, when done in proper way increases resilience to climate change significantly and can facilitate the production of various crops, despite low rainfall patterns. To simplify the applications for such funds, it is recommended that more information platforms be established for farmers and relevant organisations and support provided for information exchange between actors.

58 For more information on the CDM see http://newsroom.unfccc.int/.

59 For more information see http://www.planvivo.org/project-network/trees-of-hope-malawi/

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Glossary

Agribusinesses	An industry engaged in the producing operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities.
Agricultural Growth Corridor	A monosectoral economic corridor. This spatial planning tool is focused on enhancing agricultural activities along a backbone infrastructure and to integrate adequate policy and programmatic interventions to support the sector.
Agricultural Finance	Financial services ranging from short-, medium- and long-term loans, to leasing, to crop and livestock insurance, covering the entire agricultural value chain – input supply, production and distribution, wholesaling, processing and marketing.
Agricultural Value Chain Financing (AVFC)	The flows of funds to and among the various links within an agricultural value chain. Thus, it is any or all of the financial services, products and support services flowing to and/or through the value chain to address the needs and constraints of those involved in that chain, be it a need for finance, a need to secure sales, procure products, reduce risk and/or improve efficiency within the chain.
Commercial bank	A bank whose main business is deposit-taking and making loans. They make their profits by taking small, short-term, relatively liquid deposits and transforming these into larger, longer maturity loans.
Economic Corridor	Frequently also called growth or development corridor, it is a spatial planning instrument to enhance the near agglomeration of economic activities and people along the physical backbone of transport infrastructure. It fosters economic activities along a transport and trade route by adding policy and programmatic interventions to large-scale transport and trade infrastructure development. A key feature of economic corridors is their ability to attract investment and generate economic activities along an area or region. To achieve this, physical connectivity and logistics facilitation must be in place.
Formal Financial Institution	Financial institutions that are registered and controlled by monetary authorities or other public authorities. Furthermore, they work with a high degree of formalization on their transactions. The most relevant formal financial institutions in agricultural financing in Mozambique are the commercial banks, including also some Micro Financing Institutions (MFIs).
Fruit crop	An edible crop where the economic product is or is derived from the true botanical fruit.

Input Suppliers	Persons or firms that provide raw materials, equipment, seedlings, and services used in production.
Informal Financial Institutions	Financial institutions that are not registered and controlled by monetary authorities or any other public authority. In Mozambique the most important informal FIs are groups that are collectively owned and managed by members. These groups mobilize savings from individuals and provide short-term loans to members, and sometimes to non-members, at varying interest rates, depending on their structure. They operate at the community or village level in rural areas that often lack commercial or formal providers of financial products and services. Included in this group are accumulated savings and credit associations (ASCAs) and rotating savings and credit associations (ROSCAs).
Lead firm	In some Value Chains there exist lead firms that are key for the elaboration and management of the Value Chain. They coordinate the interaction between the links in the chain and become important for upgrading activities in the individual links.
Microfinance Institution (MFI)	A financial institution specializing in banking services for low-income groups or individuals. A microfinance institution provides account services to small-balance accounts that would not normally be accepted by traditional bank Generally, there are many types of microfinance institutions. Depending on their structure and on the banking regulations where they operate, these institutions may or may not be considered "informal financial institutions".
Outgrower scheme	Outgrower schemes, also known as contract farming, are broadly defined as binding arrangements through which a firm ensures its supply of agricultural products by individuals or groups of farmers. In other words, ad hoc trade agreements are being replaced by coordinated commercial relations between producers, processors, and traders leading to a vertical integration of the agricultural value chain.
Perennial fruit crop	Fruit crops from perennial plants bearing first fruits more than two years after having been planted as a seedling.
Rural Finance	Rural finance comprises the full range of financial services – loans, savings, insurance, and payment and money transfer services – needed, offered, or used in rural areas by household and enterprises. The term encompasses agricultural finance.
Scale of production	At the scale of agricultural production small, medium and large scale production can be distinguished. In the case of fruit crop production, the main factor for this categorization is usually the amount of land under cultivation. Small scale production is until 10 ha of area under production, medium scale from 10 to 50 and large scale production cultivating more than 50 ha.

Smallholders	Farmers producing relatively small volumes of commodities on small plots of land.
Standards/ Standardization	Means of defining and regulating product quality by specifying the characteristics which a product or the process of making it must have.
Trader	VC actors working at trade level. This includes intermediaries, brokers and wholesalers.
Value chain (VC)	The full range of value-adding activities realized to bring a product or service through the different phases of production, including procurement of raw materials and other inputs, assembly, physical transformation, acquisition of required services such as cooling, and transport to market.
Value Chain Analysis (VCA)	Sheds light on the different actors involved in a certain value chain, the size of the firms participating in each link, how they are participating or could be participating in the chain, and opportunities to facilitate or improve those linkages.
VC actors	Individuals, enterprises and public agencies related to a value chain, in particular the VC operators, providers of operational services and the providers of support services. In a wider sense, certain government agencies at the macro level can also be seen as VC actors if they perform crucial functions in the business environment of the value chain in question.
VC operators	Individuals and enterprises performing the basic functions of a value chain. Typical operators include farmers, small and medium enterprises, industrial companies, exporters, wholesalers and retailers. They have in common that they become owners of the (raw, semi-processed or finished) product at one stage in the VC. Thus, there is a difference between operators and "operational service providers", the latter being subcontracted by the VC operators.
VC supporters	Individuals and enterprises providing support services (also called support service providers) and representing the common interests of the VC actors. They belong to the meso level of the value chain.
Value chain map / value chain mapping	The value chain map is a visual representation (chart) of the micro and meso levels of the value chain. According to the definition of the value chain it consists of a functional map combined with a map of VC actors. Mapping can but does not necessarily include the macro level of a value chain.

Annexes

Annex 1: Methodology

The methodology was elaborated to carry out the mission consisting of the delivery of four outputs (see Figure 17). The study team tested the methodology during the field phase in Mozambique. The *first output* of the study has been defined as the development of a methodology to assess financing gaps along VCs of perennial fruit crops, and therefore this Annex has the aim to document the methodology and to make it publicly available for future studies with similar objectives.

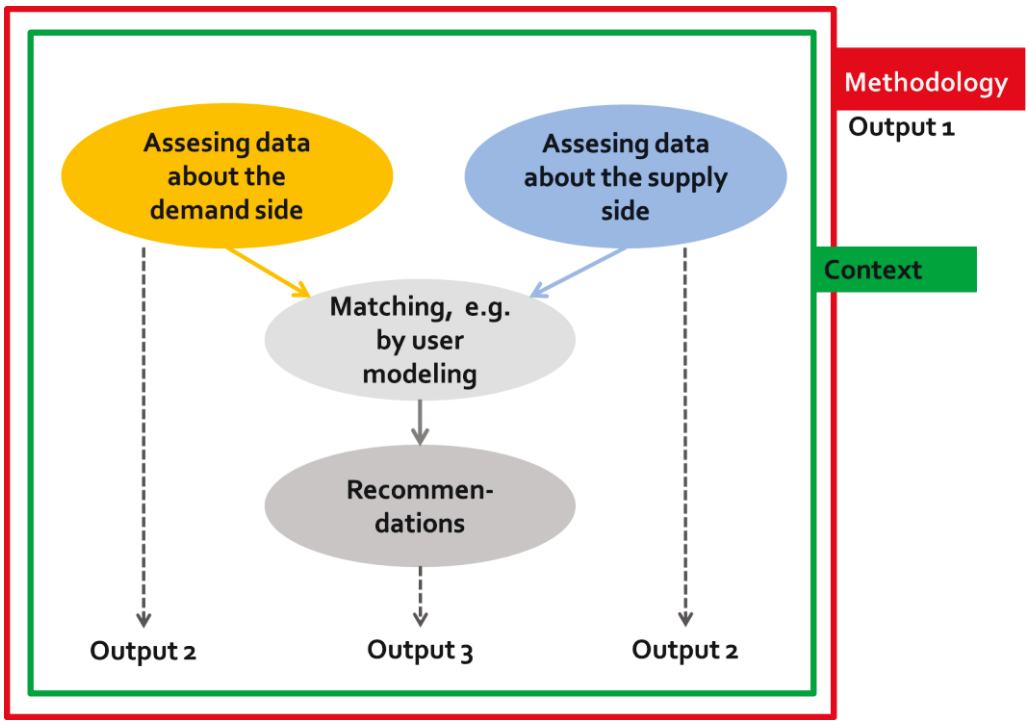


Figure 17: Methodological approach

Source: Own illustration

The *second output* of the study is in-depth information about the financial needs of VC actors (demand side) and the financial products and services of financial providers (supply side). To gain this information, desktop research as well as empirical research was conducted in Mozambique. This included surveys with banks and farms, using standardized questionnaires, as well as semi-structured expert-interviews and group discussions, using guidelines.

The information gathered formed the basis for a partial VC analysis as well as the analysis of the supply of financing products and services for actors within the VCs and the demand for such financing products and services by actors and various types of producers. In a second step, by matching demand and supply side, the financing gaps were identified. To scrutinize the challenges of financing the VCs but also the general problems within the VCs, the context was analysed, e.g. agricultural and financial policies.

The insights gained led to the *third output*, consisting of recommendations n adequate interventions to close the financing gaps within the VCs of perennial fruit crops for the KfW as actor of the financial assistance and recommendations for technical assistance to support these VCs. The recommendations are based on good practices and lessons learnt from other interventions in Mozambique and abroad. Moreover, the study team held a user modelling workshop, whereby the different producer types and their characteristics were discussed as well as what adequate financing products should look like. Also first ideas for recommendations were triangulated through a round table discussion and expert interviews.

Data collection methods

In the following, the research units are set in relation to the selected methods for data collection. During the field research, data was collected for the following six research units (see Figure 18).

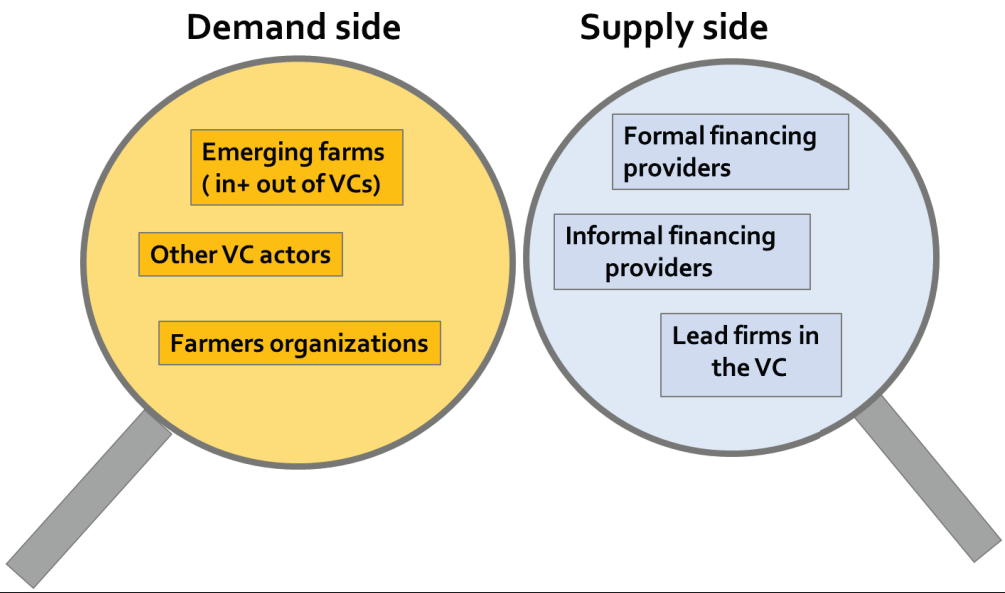


Figure 18: Research units

Source: Own illustration

On the demand side, emphasis was on emerging farms in the selected VCs and those which have the potential to be included in the VCs. Other VC actors are commercial farms and very small farms, as well as suppliers, processors, transport operators, traders and retailers. Farmers' organizations were considered as a vehicle to support a process of professionalization and to make small-scale farmers bankable.

On the supply side, the focus was on formal financing providers and lead firms in the VCs (market linkage institutions).

Emerging farms

Emerging farms have been the main research unit on the demand side. Since farmers are the main source of information about farms, the study team elicited information from them by a survey with standardized questionnaires including open and closed questions.

Although the farm survey was initially planned for Manica, Sofala and Nampula provinces, the study team finally decided to focus upon Manica Province due to the high concentration of fruit producers in this region. The survey of 48 farms provided information about the relation between farm characteristics and their financing strategies as well as their needs for financing. It also gave the information of the conception of farm profiles, which were used later for a workshop. Due to time and geographical constraints, a purposive sampling approach was applied for the survey. The extension services, local agricultural institutions and producers supported the identification of relevant farms. In order to cover the three identified subgroups of farms adequately, the number of interviewed farms per group was adapted to their numbers in the region. Most of the surveyed farms were integrated in the selected VCs. However, it was also important to cover farms interested in the production of perennial fruit crops in the future. Therefore, 6 % of the surveyed farms have still not produced perennial fruit crops. The questionnaire was tested in collaboration with partners from ISPM and some farms in rural areas before its application. At the end of the survey, the data was analysed by a multivariate analysis.

Semi-structured interviews with farmers' organizations and agricultural experts in Mozambique helped to understand the characteristics of farms in the areas and to adjust the farm categorization.

Group discussions served to verify and discuss the information obtained by other methods. Additionally, the farms' constraints in the production of perennial fruit crops in general as well as the profitability of the investment in the production of the selected fruit crops and other perennial fruit crops were discussed.

Other VC actors

In addition to the data on farms, data on other VC actors were collected to ensure a broader view on the demand side mainly based on expert interviews, the survey and workshops.

Formal financing providers

To gain information about the financing products and services already offered by commercial banks, a survey with a standardized questionnaire including open and closed questions was conducted at the headquarters of nine formal financing institutions in Maputo City and Province. They included seven commercial banks as well as two microfinancing institutions The information about the commercial banks was cross-checked with banking agents in rural branches. As it is crucial to understand the investment rational, the perceived challenges and potentials of offering more or other financial products and services for agricultural businesses were assessed.

To complete and triangulate this information, the study team conducted semi-structured interviews with experts from e.g. relevant donor and governmental institutions and reviewed literature.

Other formal financing providers that play an important role in financing producers are the microfinance institutions and financial intermediary institutions. As not all these financing providers could be covered by the survey, semi-structured interviews were conducted with them.

Informal financing providers

Informal financing providers are a third research unit on the supply side. Many Mozambicans in rural areas use the services of informal financing providers and form e.g. part of a non-registered Accumulated Savings and Credit Associations (ASCAs). The assessment of the supply side included informal financing providers, even though the mentioned actors probably will not become a partner of KfW in future interventions.

As informal financing providers are not registered, it was necessary to identify them via the snowball-principle a) by the data gained from the farm surveys and interviews, and b) by asking identified informal financing providers about other informal financing providers. By conducting semi-structured interviews, the study team got further information about the informal financing providers' products and services and the amount of finance given to emerging farms.

Lead firms in the VC

Structured interviews were conducted with the lead firms identified during the partial VCA. It was the aim to gain information about whether these lead firms already provide financing for farms and to assess their potential to step in as financing providers for the target group in future.

Data analysis

To analyse the qualitative data gathered from the semi-structured expert interviews, the research team coded the data with the software MAXQDA. Quantitative data from the farm and bank survey were processed using the software Microsoft Excel. Throughout the study, the acquisition of relevant statistical data from official bodies or experts was essential. The data supported the conclusions at the end of the study.

Methods to match demand and supply

The financing gaps were identified by matching the demand of financing products by producers and the supply by financing providers on the basis of *data gained from the surveys and expert interviews.* To develop adequate recommendations to close the financing gaps, *good practices* existing in Mozambique and in other countries were consulted. Additionally, based on the data from the farm survey, *user profiles* representing different types of farms were created including their financing needs, capacities and visions (see Annex 5). As part of a group discussion, the representative nature of these user profiles was examined. Furthermore, this workshop supported the identification of possible solutions to close the financing gaps of these farms.

Recommendations for the financial and the technical assistance

Based on the matching of demand and supply, the identification of financing gaps, as well as the stated challenges of financing institutions, the study team developed adequate financing products and services. The study team discussed these recommendations with several experts and their feedback was integrated. Furthermore, it was crucial to identify adequate interventions for the technical assistance to enable a) the financing providers to offer these products and services and b) the emerging farmers to use them. These recommendations are based on the analysed information from the surveys, interviews and group discussions including the expressed needs and best practices.

Final remarks

The methodology was applied during the research and as shown above, only small deviations from the plan were necessary. The farm and the bank survey as well as the semi-structured interviews provided very useful information about both the supply and the demand side. However, after having analysed the data, it would be useful to formulate new open questions and to close the knowledge gaps with further expert interviews. With this loop, the results could be more specific. Creating farm profiles based on the data gathered was helpful to restructure the information and to discuss financing possibilities with direct examples. Furthermore, for workshops including the discussion of these profiles and how to address the farms' needs ("user modelling") an active and direct motivation of financing institutions is needed to guarantee their participation and active input.

Annex 2: Brief summary of the case study of citrus Value Chain in Maputo Province

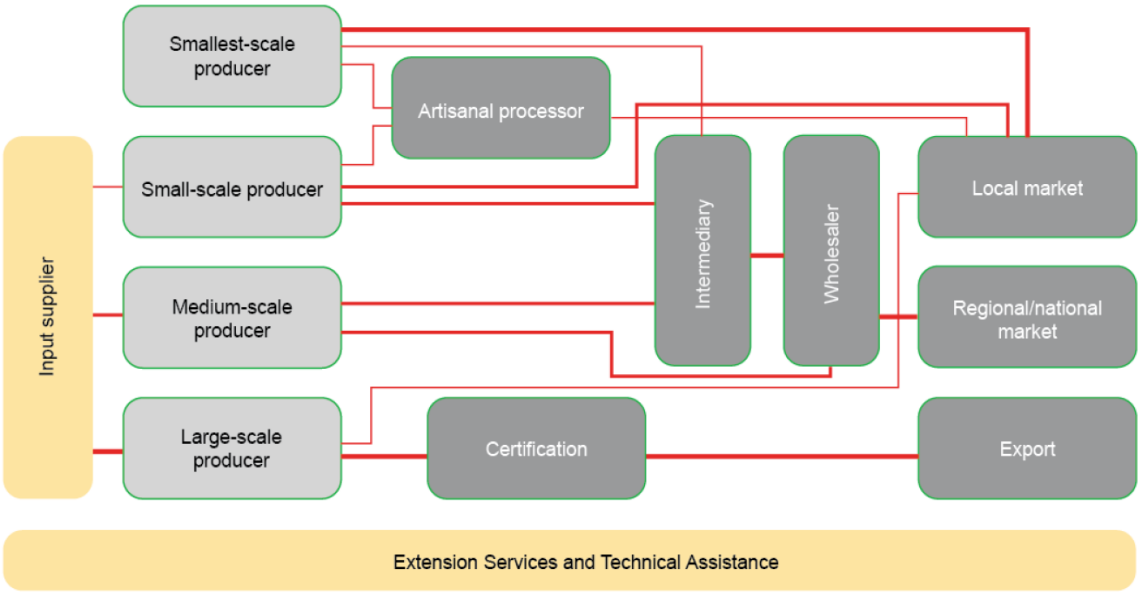
Introduction and Context

Mozambique has immense natural resources and areas with great potential for agriculture, which is still not used due to low levels of production and productivity. In Maputo Province, in the District of Boane, located 60 km west of Maputo City there are ample accounts of citrus production; however, production volume has declined in recent years. Currently the production of citrus fruits is mostly in the family sector. The main citrus fruits produced and marketed in the region are Valencia and Nevel oranges, Marsh and Star Ruby grapefruits and Satsuma mandarins.

Through this research we aimed to expand knowledge about the citrus fruit value chains in Maputo Province in Mozambique by identifying gaps that can be addressed and opportunities for actions that can be used within the framework of projects supported by the international development cooperation.

Methodology

This research was conducted in the framework of case study research looking at the specific citrus value chain in Maputo Province. Due to the limited time and resources, more in-depth research was not possible. The research team used observation and various sources of information, such as articles, reports, international and domestic standards for horticulture products as well as qualitative semi-standardised and open-ended interviews carried out with several actors involved in the value chain, e.g. CITRUM – Citrinos de Umbeluzi, Compal+Sumol, INNOQ, GAPI, FENAGRI, UNAC, Ministry of Agriculture and Food Security (CEPAGRI), Ministry of Industry and Trade (IPEME and IPEX), IIAM (EAU), Maputo Development Corridor, Municipal Council of Maputo City (Directorate of Market Places and Fairs) – for data collection and its analysis.



Mapping of Citrus Fruit Value Chain in Maputo Province

Source: Own illustration

SWOT of the Citrus Fruit Value Chain

Strengths	Weaknesses
• Some current citrus production by small-scale farmers • Good quality seedlings being introduced • Potential market for organic products • Potential of citrus for improving food security	• Lack of prioritization of citrus fruits as main crops • Poor quality of the product • Scale has no commercial production level • Lack of post-harvest treatment and processing to add value to the product • Perishable products • Only one harvest per year • Lack of priority for commercial citrus production • Lack of careful attention to the trees • Old trees have suffered too much stress for many years without care and therefore they are less productive • High degree of informality in the branch • Misinformation and lack of knowledge among producers • Lack of associations and cooperatives • Lack of statistical information.

Opportunities	Threats
• Good location in terms of logistics • Good environmental and climate conditions • Interest in research and extension institutions in the sector • Crops resistant to drought • Favourable climate window • Research and development of improved varieties of seedlings • Development of specific standards for citrus fruits (IIAM / INNOQ)	• Competition with South Africa • Lack of interest for public and private investments in the sector • Frequent droughts • Bureaucracy • Pests (fruit fly)
Source: Own illustration	

Concluding remarks

The experience in the field led the research team to develop some considerations.

An important issue to address is the current lack of information and research about the fruit production in Mozambique. Reliable information and adequate assessment are fundamental tools at the start of any other research in the area, as well as for formulation of national strategies und the mobilization of funding.

Furthermore, the importance of adequate characteristics of seedlings for obtaining a quality end product with good marketing possibilities needs to be highlighted. The quality of citrus fruits also depends on the care that the tree receives in all development stages and therefore it is expected that good, well-cared seedlings may lead in the future to more productive trees with fruits of better quality, and thus, with market possibilities at a higher price.

The development of value chain of perennial fruit crops through the establishment of processing units providing some minimal treatment such as scouring, waxing and packaging could contribute to increasing the added value in the production process which would allow better adaptation to quality standards, and would thus facilitate the access to more formal markets where the selling price is higher.

Annex 3: Mapping of credit lines, guarantee facilities and other investment vehicles promoting agricultural finance

Type	Funder/ Organization	Project name	Amount	Target FI	Target market	Terms/ Conditions
Credit line	KfW	Financial Sector Technical Assistance Programme	EUR 6.4 million	BTM	Agribusiness	7 years
Credit line	Kuwait Fund / Government of Mozambique (managed by BTM)		USD 4 million	Microbanks and credit cooperatives	MSME in agricultural VCs, loans up to 1.2 mil MZN	- Up to USD 500,000 - 7-8 % interest + 3 % fee - 12-24 months
Government Sponsored Credit Line	Government of Mozambique	Fundo de Desenvolvimento Agrícola (FDA)	MZN 400 million	Direct credit to Business; Some lines work through BIM, BCI, credit cooperatives	Agriculture, agroprocessing, husbandry	- 100,000-1.35 million MZN. - IR: 10-20 % - 1 year – working capital - 5/year – investment - PAPA (leasing) - IR: 0 %-5 %, depending on owner investment
Government Sponsored Credit Line	Ministry of Trade and Industry	Private Sector Re-launching Programme (PRSP II)	Est. USD 10 million	BCI, BIM, Moza Banco	Agribusinesses	- 0 % interest - Decisions made jointly with ministry - No max amount/bank. - 50 % risk share with bank - Conditions vary

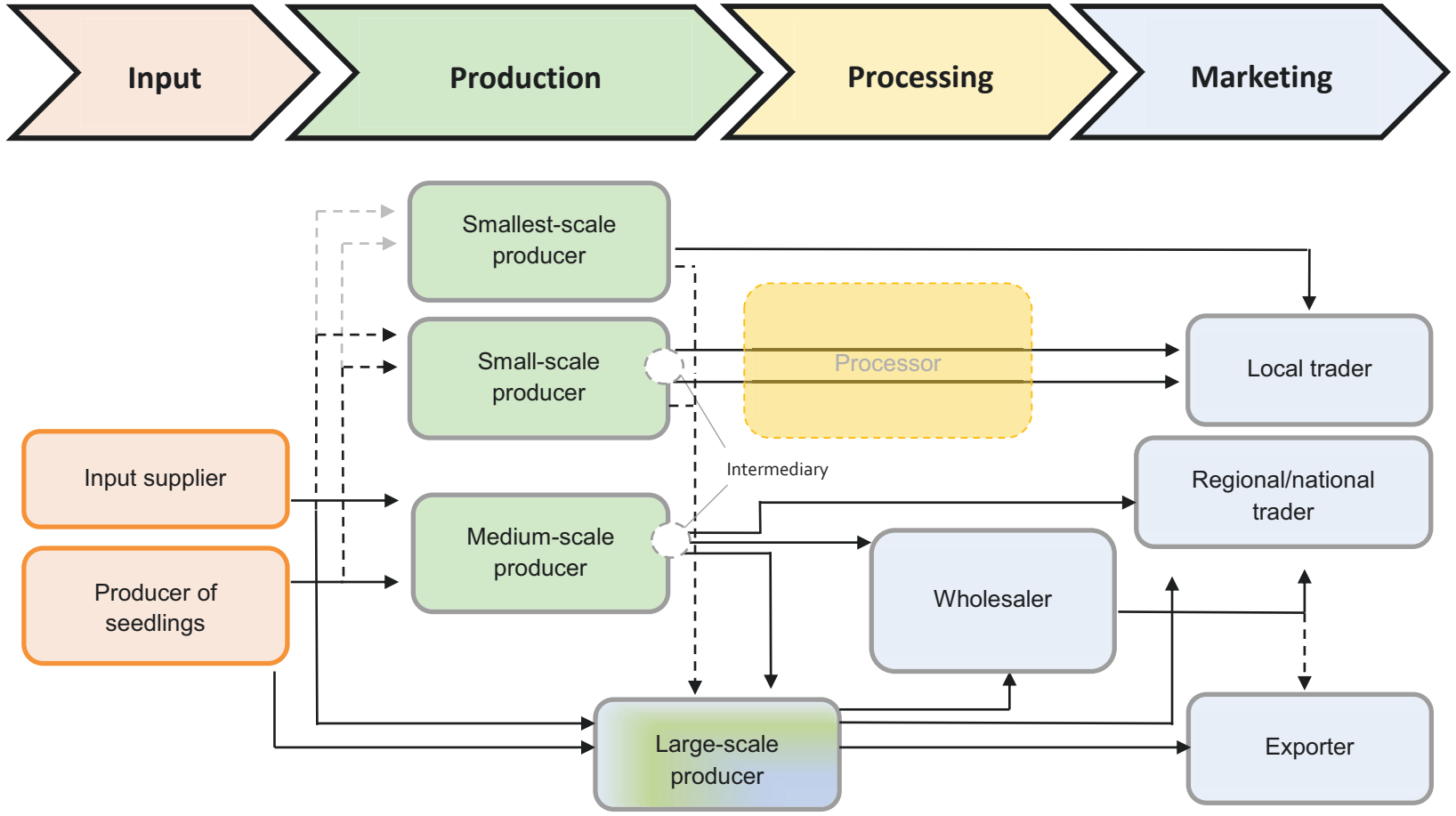
Annex 3: Mapping of credit lines, guarantee facilities and other investment vehicles promoting agricultural finance (cont.)

Type	Funder/ Organization	Project name	Amount	Target FI	Target market	Terms/ Conditions
Credit line	Alliance for Green Revolution in Africa (AGRA)	Agricultural credit line	Global amount: USD 100 million; Announced investments.: USD 25 million	Standard Bank	Food producers	N/A
Guarantee	DANIDA		USD 1 million	BTM	Smallholders	▪ 40-60 % coverage
Guarantee	DANIDA (Managed by GAPI)	AgroInvest	USD 35.6 million	All banks (initially limited to banks)	Agribusinesses	▪ $ 2.4 million/ guaranteed loan ▪ 1 %/year of guaranteed amount ▪ 5 years/ 20-65 % depending on loan size to end borrower
Guarantee	Rabobank		N/A	Investee banks (BTM – since 2009)	Agricultural value chain	▪ Portfolio guarantee ▪ Guarantee 90 % of loan amount (interest and fees), sharing loss

Annex 3: Mapping of credit lines, guarantee facilities and other investment vehicles promoting agricultural finance (cont.)

Type	Funder/ Organization	Project name	Amount	Target FI	Target market	Terms/ Conditions
Guarantee	USAID/DCA		N/A	BCI	Agricultural value chain	Portfolio guarantees: ▪ Period > 5 years ▪ Loan sizes approved facility (e.g. up to MZN 5 million) ▪ Loan terms are restricted by product (e.g. 1 year for input loans / 5 years of assets) ▪ Facilities: approx. 8 years ▪ 50 %, shared loss on capital (not interest) ▪ Origination fee (typically <1 %) Utilization fee (typically < 1 %) ▪ All risks covered ▪ Pay-out in currency in which guarantee loan was made
Equity and debt in SMEs	Beira Agriculture Growth Corridor Initiative (BAGC)	Catalytic Fund	USD 5 million	Agribusiness, including smallholder operations	Direct investment in agricultural SMEs	▪ Investments: USD 100,000 to USD 1 million
Risk management fund	IFAD	PROMER (Managed by AMODER and GAPI)	USD 300,000	Agro-dealers	Agricultural suppliers – through trader credit scheme	▪ USD 500-USD 1,000 / loan ▪ 90 days credit
Source: Own illustration adapted to Miamidian (2013)						

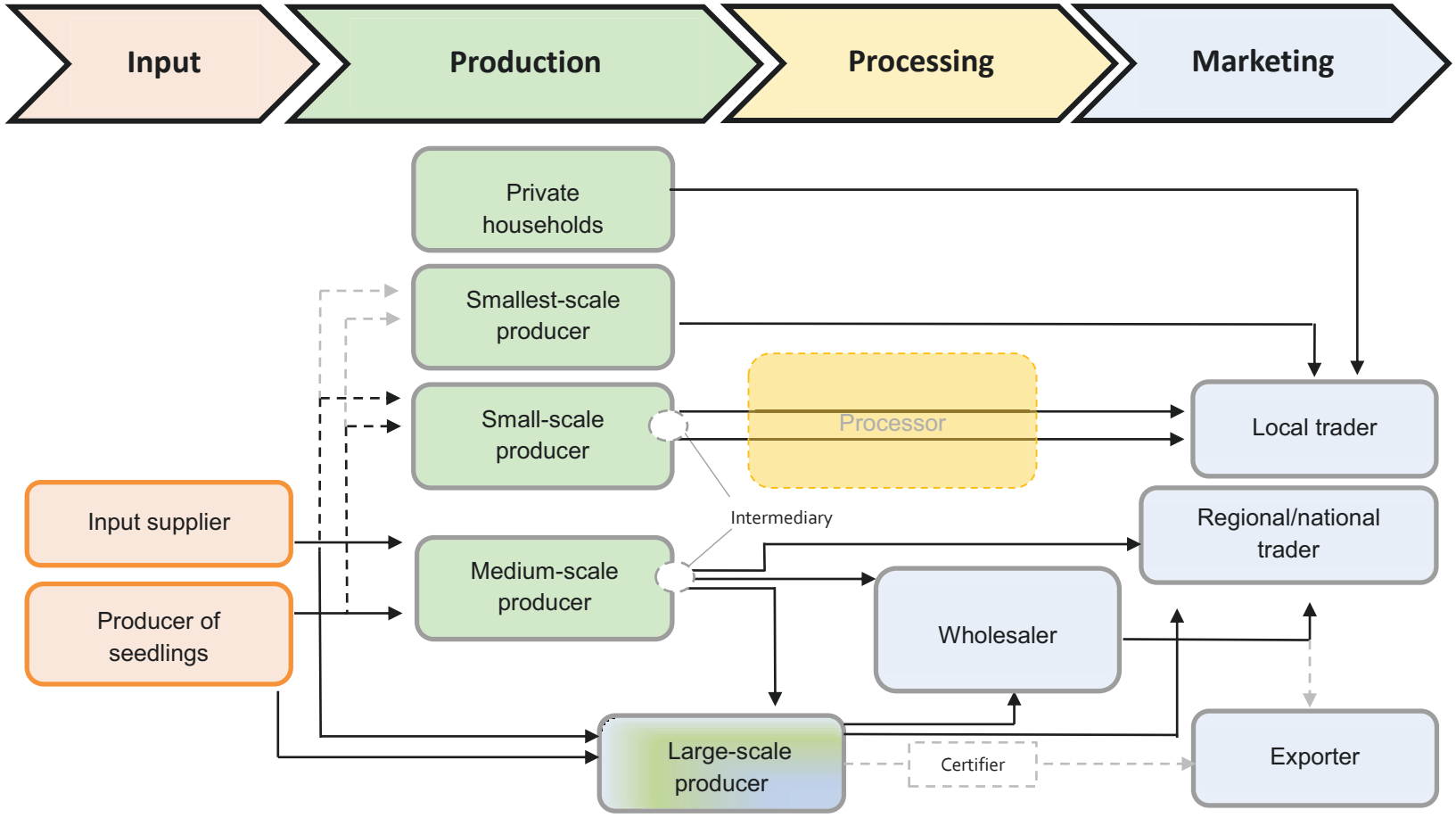
Annex 4: Mapping the lychee, mango and citrus VCs



Lychee VC

Source: Own illustration

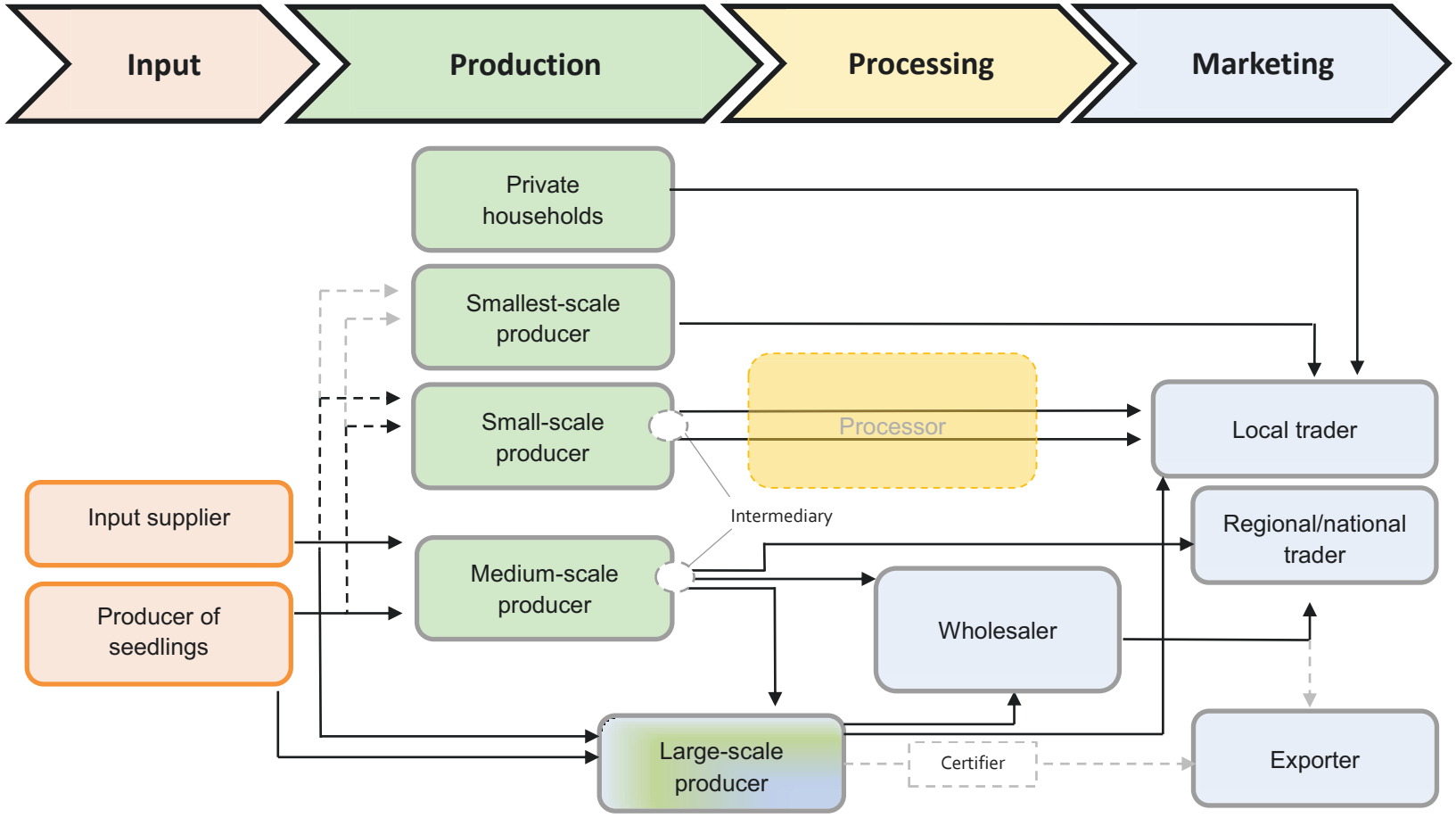
Annex 4: Mapping the lychee, mango and citrus VCs (cont.)



Mango VC

Source: Own illustration based on analysis

Annex 4: Mapping the lychee, mango and citrus VCs (cont.)



Citrus VC

Source: Own illustration based on analysis

Annex 5: Detailed farm types

	Target Group			
	Small		Medium	
Indicators	Small	Emergent	Medium	Emergent
Size of land under permanent cultivation ▪ The size of permanent cropped land is one basic indicator for potential earnings of the farmer	≤10	>3 - ≤10	>10 - ≤50	
	▪ Basically both have the same size of land. But it can be assumed that cultivating more than three hectares financial margins of the farmer are bigger.		▪ Regarding the size, both potentially have the similar revenue base.	
Formalisation of their business ▪ Basics for the formalisation of a business are DUAT and NUIT and are pre-condition to access commercial credits ▪ DUAT secures the formal right to use the land ▪ NUIT allows the person/entity to write invoices, to import goods and to licence business	▪ Normally has neither DUAT for their cultivated land nor NUIT for their business.	▪ Having at least the DUAT for partial areas of cultivated land the emergent farmer took the first step to be bankable. ▪ Might has NUIT which indicates his self-perception as a business-man	▪ Should have at least DUAT for partial cultivated area	▪ Should have DUAT for total cultivated area and NUIT
Irrigation, varieties and use of inputs Decisive for quality and quantity of fruits ▪ Which markets can be accessed	▪ Irrigation system is one of the major investment needs for both		▪ Both should have at least irrigation systems for parts of his area, emergent is more likely to have for total fruit crop he cultivates ▪ Both use certain varieties	
	▪ Might know the variety he is growing ▪ Due to lack of means usage of fertilizers is low	▪ Knows the variety he's growing in order to meet quality standards ▪ Is more likely to use fertilizers and inputs	▪ Sometimes have technical and/or financial problems in running it's irrigation system ▪ Lack of means for extensive use of fertilizers	▪ Is more likely to have irrigation system for total fruit crop area he cultivates
Number of cultivated crops ▪ Indicates the specification on certain crops and thus could be an indicator for the market orientation ▪ Indicates the need to diversify the risks	▪ Besides perennial fruit crop(s) cultivates mainly staple crops, mainly for self-consumption		▪ Cultivates a greater range of different crops as he's more in need of risk diversification	▪ Cultivates three or less crops mainly for commercial purpose with minimum area of 3 ha each
		▪ Emerging farms are more likely to have more than one perennial crop		

Annex 5: Detailed farm types (cont.)

	Target Group			
	Small		Medium	
Indicators	Small	Emergent	Medium	Emergent
Technical knowledge ▪ Soft skill hard to quantify, the usage of public/private extension services indicates technical knowledge	▪ Due to low coverage of public extension service, reception of public extension service isn't distinctive criteria. ▪ (Maybe: Small emergent stronger connected to public extension services as his potentials have been identified by SDAE)		▪ Receives public extension services (due to major yield losses)	▪ Does not have the urgent need of public extension services, in special issues might have already used private consultancies
Collateral ▪ Possession of physical assets is precondition to access commercial bank sector ▪ Good to have for other financing options	▪ Might have a conventional house	▪ Conventional house (can serve as basic collateral)	▪ Conventional house ▪ Possible collaterals for both: car, tractor	
Management skills ▪ indicates planning capabilities, allows the quantification of his financing needs ▪ indicator are awareness of costs and earnings or even more accountings	▪ Mostly cannot quantify costs and earnings	▪ Can quantify main costs and earnings, but not always has it in written form	▪ Keeps basic accountings in written form registering main costs and earnings	▪ Keeps basic accountings in written form
Financial literacy and bank history ▪ Financial literacy indicates the capability to handle debts. It can be derived how complex or simple financial products have to be for end-user ▪ Having bank history could create more confidence of the bank in the farmer	▪ Haven't had any financing history ▪ Financial literacy is low, farmers have problems to understand financial terms like bank loan, interest rates or collateral	▪ Might have already received financing from savings groups, MFIs or governmental institutions ▪ Basic understanding of financial terms	▪ Both understanding of financial terms ▪ Both have banking accounts ▪ Might have had received financing, mostly from governmental institutions	▪ Has already received financing ▪ At least gathered information about products of commercial banks
Market access ▪ Which market he access ▪ Maybe by contract which demonstrates that he is able to deliver stable quantity or quality	▪ Predominantly sales on local market	▪ might has linkages to wholesalers or is integrated in outgrowing schemes	▪ Various marketing options ▪ Stronger connection to local markets ▪ Linkages to wholesaler or other lead firms depends of the yearly varying quality of his products	▪ Strong connection to markets of bigger quantities ▪ Maybe having a contract with wholesaler or lead-firm

Source: Own illustration based on analysis

Annex 6: Farms' needs to improve production and productivity

Farm type	Irrigation	Labour	Tractors	Seedlings
Smallest-scale farm	++	++	+	+++
Small-scale farm	+++	+++	++	+
Medium-scale farm	+++	+++	+++	+

Legend: +++ = >75 %; ++ = >50 %; + = <50 %

Please note that the score (%) refers to the share of responses for each attribute (irrigation, labour, tractors and seedlings) within each type of farms.

Source: Data from own farm survey

Annex 7: Example calculations for credit lines

1. Installation of a block farming unit

Assumptions:

- cultivation of 200 ha lychee through 100 in-growers (farmers), 7 years until break-even
- demand for a 7-year-credit
- Trainings: 5 trainings of 3 days each over the 7 years. 100 farmer split into 5 groups. So, at least 75 man-days of trainers needed. USD 500 per man-day of a trainer. Makes USD 37,500 remuneration only. Plus rooms, catering etc. per training day 100 USD --> USD 7,500. USD 45,000 in total.
- A simple building is already on the land available.
- 3,900 R/ha/year (USD 273.66)

Financing needed for:↓	**Fixed costs**	**Running costs**	**Total costs** (USD)
Land preparation (with bush clearing)	USD 230 x 200 [ha] = USD 46,000		46,000
DUAT	USD 500 x 200= USD 100,000		100,000
Seedlings	USD 1,400 x 200= USD 280,000		280,000
Irrigation system	USD 1,500 x 200= USD 300,000	USD 500 x 200 x 7= USD 700,000	1 million
Fertilizers		USD 50 x 200[ha] x 4[years]= USD 400,000	400,000
Trainings for in-growers			45,000
Total:			1,871,000

(Values rounded. For single prices please see Table 7 in section 5.5)

Source: Own illustration based on analysis

Further costs:

- interest payments over 7 years
- transport for in-growers to their homes
- manager salaries
- electricity and water costs

2. Irrigation system

Assumptions:

→ for litchi production, micro-jet technology

- for a medium-scale emerging producer

  → USD 3,000 x 10[ha] = USD 30,000

  → higher irrigation system costs due to much smaller amount of ha and missing economies of scale then for the 200 ha-plot from calculation example 1

- for a small-scale emerging producer

  → USD 3,000 x 2[ha]= USD 6,000

3. Labour costs for production

Assumptions:

→ for litchi production of 5 ha

→ labour paid at minimum wage for one month → minimum wage (Agriculture, Livestock, Hunting and Forestry): MZN 3,196

- mainly needed for short periods all at the same time (production steps where labour is needed: land preparation, planting of seedlings, harvest)
- 7 farmworkers for one month: 7 x MZN 3,196 = USD 500 (per production step)

Annex 8: Expert interview questionnaires

Organization/Institution:	Interview partner:	Date:	Chiffre:

Protocol – Explorative Interview

Interviewers: Location:

No.	Topic	Question	Information
1.0.0	Policies & strategies agric. sector	Which are the main policies, strategies and factors influencing the development of agricultural sector (or selected VCs)?	
1.0.1	Policies & strategies agric. sector	Which policies *support* the further development of agricultural sector and the selected VCs and how?	
1.0.2	Policies & strategies agric. sector	Which policies *hinder* the further development of the agri. sector and how?	
1.0.3	Policies & strategies agric. sector	How have the main policies, strategies and factors *developed historically* and how did the agri. sector change?	
1.0.4	Policies & strategies agric. sector	Which other factors *hinder* the development of the agri. sector? (e.g. lack of infrastructure, extension services, etc.)	
1.1.0	Legislation	How do certain laws influence the agri. sector or its financing regarding the agri. production (or selected VC)?	
1.1.1	Legislation	How do certain land laws influence the agricultural sector or its financing regarding the agricultural production (or selected VC)?	
1.2.0	Agricultural Growth Corridors	How does the concept of agricultural growth corridors work in Mozambique? What implications does it have for the agricultural development?	
1.3.0	Policies & strategies: financing the agricultural sector	What are the main policies and strategies influencing the development of financing the agricultural sector in Mozambique?	
1.3.1	Policies & strategies: financing the agricultural sector	Which policies *support* the further development of financing in the agricultural sector and the financing of the selected VCs and how?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
1.3.2	Policies & strategies: financing the agricultural sector	Which policies *hinder* the further development of financing in the agricultural sector and the financing of the selected VC and how?	
1.3.3	Policies & strategies: financing the agricultural sector	What role does the Central bank's policy play in financing the agricultural sector?	
2.0.0	Rural finance - general	How do rural households in Mozambique save and borrow?	
2.0.1	Rural finance - general	How do rural enterprises get access to finance?	
2.0.2	Rural finance - general	Is over indebtedness a problem in rural Mozambique?	
2.0.3	Rural finance - general	How good is financial literacy in Mozambique?	
2.0.4	Rural finance - general	Does mobile banking play an important role in rural finance in Mozambique? (e.g. m-pesa)	
2.1.0	Rural finance - actors	Who are relevant stakeholders of rural finance in Mozambique?	
2.1.1	RF - actors - ASCAS/CCs	How do accumulated savings and credit associations (ASCAS) in Mozambique work? How are they organized?	
2.1.2	RF - actors - ASCAS/CCs	How do credit cooperatives work in Mozambique? How are they organized?	
2.1.3	RF - actors - ASCAS/CCs	How much does the rural population use them?	
2.1.4	RF - actors - ASCAS/CCs	How does the rural population perceive these organizations?	
2.1.5	RF - actors - ASCAS/CCs	How high are the average credits granted by these types of organizations?	
2.1.6	RF - actors - ASCAS/CCs	How high or low is the repayment rate?	
2.1.7	RF - actors - ASCAS/CCs	For which type of expenditures are the credits granted? (e.g. business investments, health, education, food, etc.)	
2.1.8	RF - actors - ASCAS/CCs	How high are the interest rates?	
2.2.0	RF - actors - informal finance providers	Which informal financial providers are active in rural finance?	
2.2.1	RF - Actors - informal finance providers	What's the role of money lenders?	
2.2.2	RF - Actors - informal finance providers	How high are the interest rates?	
2.3.0	Agric. finance - general	What are the main agriculture finance products and how do they work?	
2.3.1	Agric. finance - general	What are the pros and cons of implementing them?	
2.3.2	Agric. finance - actors	Who are relevant actors for the financing of the agricultural sector?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
2.3.3	Agric. finance - actors	Which commercial banks are best known for their activities in the agricultural sector?	
2.3.4	Agric. finance - actors	How do you assess their performance?	
2.3.5	Agric. finance - actors	How would you asses the role of Microfinance Institutions regarding agricultural finance?	
2.3.6	Agric. finance - actors	How many are there in the field?	
2.3.7	Agric. finance - actors	How well are they dispersed?	
2.3.8	Agric. finance - actors	How high are the average credits granted to businesses?	
2.3.9	Agric. finance - actors	Which microfinance operators are quite institutionalized and are active in Manica, Sofala or Nampula?	
2.3.10	Agric. finance - actors	Which international and national NGOs are involved in agriculture finance?	
2.3.11	Agric. finance - actors	Which donor programmes or projects do you know that are active in agricultural finance?	
2.4.0	Agric.fin - disabling factors	What are the main disabling factors for financing the agricultural sector in Mozambique?	
2.4.1	Agric. fin - disabling f./risks	Which risks impede financial institutions to extend their products and services to the agricultural sector?	
2.4.2	Agric. fin - disabling f./risks	Are there specific risks related to agricultural production?	
2.4.3	Agric. fin - disabling f./risks	Are there specific risks related to contractual obligations?	
2.4.4	Agric. fin - disabling f./risks	Are there specific risks related to finance?	
2.4.5	Agric. fin - disabling f./risks	Are there specific risks related to marketing?	
2.4.6	Agric. fin - disabling f./risks	Are there specific risks related to prices?	
2.4.7	Agric. fin - disabling f./risks	Are there specific risks related to climate/weather?	
2.5.0	Agric. fin - disabling f./policy & legislation	Are there regulations in place which impede financiers to extend their products and services to the agricultural sector?	
2.6.0	Agric. fin - disabling f./ capacities	What are the capacities of the financiers to finance the agricultural sector?	
2.6.1	Agric. fin - disabling f./ capacities	Are the structures of financial institution in Mozambique adequate to finance the agricultural sector?	
2.6.2	Agric. fin - disabling f./ capacities	Do financial institutions have enough knowledge to be able to assess business plans of agricultural actors?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
2.7.0	Agric. fin - disabling f./ perceptions	Does the bank management have a general bias towards urban population? How do they perceive farmers and other rural people?	
2.8.0	Agric. fin - enabling factors	What are the main enabling factors for financing the agricultural sector in Mozambique?	
2.8.1	Agric. fin - enabling /disabling factors	Why are investments in the agricultural sector attractive for certain financiers? What are expected benefits?	
2.8.2	Agric. fin - enabling factors	What are the main economic potentials of agriculture in Mozambique?	
2.8.3	Agric. fin - enabling factors	Are there policies in place which support the further development of agriculture finance?	
2.8.3	Agric. fin - enabling/ disabling factors	What has to change so that financiers would be willing to increase their investments in the agricultural sector?	
2.9.0	AVCF- general	Do you know the AVCF approach? If Yes: Did you ever work with this approach? If yes in which context/project?	
2.9.1	AVCF- general	Which instruments and models are recommended for which case or context?	
2.9.2	AVCF - general	How could non-financial financing providers be supported? What needs to be done to make them broadening and up-scaling their supply?	
2.10.0	AVCF - general/ perennial fruit crops	What are the potentials and barriers for financing the Value Chains of perennial fruit crops in Mozambique?	
2.11.0	AVCF - good practices	Do you know good practices for agricultural finance in Mozambique?	
2.11.1	AVCF - good practices	Do you know good practices for agricultural finance elsewhere?	
2.11.2	AVCF - good practices	Could this instrument/approach work in Mozambique? If yes how? If not why?	
2.11.3	AVCF - good practices	In your opinion what are adequate solutions to finance Value Chains of perennial fruit crops in Mozambique?	
2.11.4	AVCF - good practices	Is equity financing a possible solution to close the financing gap in Mozambique? And if yes, how could this look like?	
2.11.5	AVCF - good practices	What accompanying measures are needed?	
3.0.0	Agriculture - general	How does infrastructure influence agriculture in the selected regions?	
3.0.1	Agriculture – general	How is the perception of outgrowing schemes and/or contract farming within the Mozambican context?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
3.1.0	VCs of perennial fruit crops	What are the main advantages of perennial agricultural products within the Mozambican context?	
3.1.1	VCs of perennial fruit crops	What are the main perennial fruit crop-specific risks?	
3.1.2	VCs of perennial fruit crops	What are the options for farms to diversify the perennial-specific risk through on-farm activities/cultivating other crops?	
3.1.2	VCs of perennial fruit crops	What are the most cultivated perennial (fruit) crops in Mozambique? (for the market?)	
3.1.3	VCs of perennial fruit crops	What is the most promising perennial FC (for marketing) in Mozambique	
3.1.4	VCs of perennial fruit crops	What are the VCs of perennial FC which are organized through outgrower schemes and contract farming?	
3.2.0	VCs mango/lychee	Who are the main input suppliers in selected VCs?	
3.2.1	VCs mango/lychee	What are the existing and potential options to process the selected fruit crop?	
3.2.2	VCs mango/lychee	What are the main marketing channels of the selected VCs? What are the main traders in selected VC (supermarket, wholesaler, spot market)?	
3.2.3	VCs mango/lychee	What are pre-conditions for producer to enter the VCs?	
3.2.4	VCs mango/lychee	What are the main challenges for the producers (especially small-and medium-scale farmers) to increase their production and productivity?	
3.2.5	VCs mango/lychee	What are the main challenges to produce fruits for domestic/external markets? (quality standards)	
3.2.6	VCs mango/lychee	What kind and quality of extension service is provided by whom in the selected research area?	
3.2.7	VCs mango/lychee	What is the profitability (most profitable) of the perennial fruit crops?	
3.2.8	VCs mango/lychee	What are the main challenges for the further development of selected VC?	
3.2.9	VCs mango/lychee	What are the perspectives of perennial fruit crops (selected VCs) in Mozambique?	
3.2.10	VCs mango/lychee	Which VC-actors could be defined as lead players with numerous forward and backward linkages?	
3.2.11	VCs mango/lychee	Are the selected FC susceptible to extreme weather events and other risks? How do the VC actors tackle these risks?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
3.2.12	VCs mango/lychee	Are outgrower or similar schemes in place in the selected VCs? How do they work?	
3.3.0	VCs mango	How do Mozambican institutions try to tackle the persistent problem of the fruit fly?	
3.3.1	VCs mango	What are other special characteristics of mango that have to be considered?	
3.4.0	VCs lychee	Is their experience about tackling the technical requirement of the unbroken/closed cold chain in order to export Lychee?	
3.4.1	VCs lychee	What other special characteristics of lychee have to be considered?	
3.5.0	Farm structure - Moz/areas	What are the differences between the production systems in the selected areas (size, diversification, land tenure, gender)?	
3.5.1	Farm structure - Moz/areas	How do farmers generate family income?	
3.5.2	Farm structure - Moz/areas	What are the main challenges that farms are facing to increase productivity?	
3.5.3	Farm structure - Moz/areas	What are the barriers for farmers to start / increase production in the selected VCs (perennial fruit crops?)	
3.6.0	Access to finance	What are the major constraints for farms in getting access to finance?	
3.6.1	Access to finance	How do farms finance new investments?	
3.6.2	Access to finance	How do farms finance the selected perennial fruit crop during the lead time until cash breakeven?	
3.6.3	Access to finance	How do farms finance their running costs and additional production steps?	
3.6.4	Access to finance	Do farmers own the appropriate management skills to receive financing? What skills do they lack to get bankable?	
3.6.5	Access to finance	What measures are appropriate to tackle the problems? (good practices)	
3.6.6	Access to finance	What could be appropriate technical assistance in order to make them bankable?	
3.6.7	Access to finance	What are the experiences with financial products and services in the agricultural sector?	
3.6.8	Access to finance	Where do farmers lend money and what are the conditions?	
3.6.9	Access to finance	How is the farmers' repayment discipline? If not, what are important factors to consider?	
3.6.10	Access to finance	What are the main assets for farmers in getting access to financing? What are important factors to consider?	

Annex 8: Expert interview questionnaires (cont.)

No.	Topic	Question	Information
3.6.11	Access to finance	Is the topic of access to finance discussed in your institution/organization? In what way?	
3.7.0	Farmers organizations	What are the existing types of farmers' organizations according to their legal status?	
3.7.1	Farmers organizations	Are their farmer organizations especially for perennial FCs (selected FCs)	
3.7.2	Farmers organizations	How is the acceptance/perception of different forms of organizations among the various farmers and other relevant actors?	
3.7.3	Farmers organizations	What type of farmers' organization has been successful in the recent years? (in integrating small-scale farms?)	
3.7.4	Farmers organizations	What are the benefits for farmers in farmers' organizations	
3.7.5	Farmers organizations	What are the main advantages of farmers' organization in getting access to a) product markets and b) to financial products and services?	
3.7.6	VCs	What crop (FC) do farmers want to invest in?	
3.8.0	Other relevant data	Input costs / market share in selected VC	

Annex 9: Bank survey questionnaires (commercial banks and MFIs)

Standardized questionnaire for banks

Name of the bank: **Code of the interview:** ☐☐

Name of the interviewed staff member:

Date: **Location:**

A) Introduction		COMMENTS
1.	For how long have you been working in the financial sector? Less than 1 year ☐ 1-3 years ☐ 3-10 years ☐ More than 10 years ☐	
2.	Total number of branches in the country:_____ _____ In Maputo City: _____Total outside Maputo City _____	
3.	How much is the total number of staff?	
4.	Who are your main clients? Individuals ☐ Business ☐ Government Institutions ☐ Other ☐ _____	
5.	How high are your interest rates for…. …commercial and industrial loans? _____per cent per year …consumer loans? _____per cent per year	

B) Rural Finance		**COMMENTS**
6.	What is your core business in rural areas? Lending ☐ Savings ☐ Both equally ☐ Other ☐	
7.	a. Did you ever try to tap into the informal sector? Yes ☐ No ☐ b. If yes, what are your experiences? _____	
8.	a. Did you ever try to link up with informal financing providers? Yes ☐ No ☐ --> go to 10. b. If yes, with whom? ASCAs ☐ Credit Cooperatives ☐ Money Lenders ☐ Micro operators ☐ Other: ☐ _____ c. What are your experiences in working with informal financing providers?_____	
C) Agrifinance		**COMMENTS**
9.	a. How attractive are investments into the agricultural sector for your institution? Not attractive ☐ Limited ☐ Attractive ☐ Very attractive ☐ b. Please explain your answer: _____	
10.	Is your institution lending to the agricultural sector? Yes --> **Questionnaire-Part A**	

Part A

D) Institutional embedding		COMMENTS
11.	a. Do you have a department or a specific organization unity for agriculture? Yes ☐ --> Questions 13 to 16 No ☐ 12.b. If no, how many employees have expertise in the agricultural sector? _____	
12.	How many people work in that department?	
13.	How many of them have agricultural expertise?	
14.	Since when does it exist?	
15.	Why did your institution decide to build a particular department for agricultural finance?	
16.	a. Do you personally have expertise in agricultural finance? Yes ☐ No ☐ b. If yes, where did you gain this expertise in agrifinance? _____	
E) Financial products and services for the agricultural sector		**COMMENTS**
17.	Which requirements do clients from the agricultural sector need to fulfil to be credit worthy? Legal documents (I.D., register certificate of business,...) ☐ Financial records ☐ Business plan ☐ Assets ☐ Other: ☐ _____	
18.	What do you accept as collaterals? Buildings ☐ Technical equipment (incl. Machinery) ☐ Irrigation system ☐ Crops ☐ Forward contracts ☐ Warehouse Receipts ☐ Vehicles ☐ Steady income ☐ Other:	
19.	How do you get your information about your **clients from the agricultural sector** next to reading the presented documents? We visit the business/production site *before* granting the product. ☐ We contact business partners or other stakeholders of the client. ☐ We visit the business/production site *after* granting the product. ☐ We contracted services to visit business/production sites. ☐ Other _____	

20.	a. Do you offer **advisory services** to agricultural entrepreneurs and farmers? Yes ☐ No ☐ b. If yes, what do they include?	
21.	How high is the total share of agricultural financing in your portfolio? Less than 1 %	
22.	a. Does your institution offer financial products and services **specifically tailored** to the agricultural sector? Yes ☐ No ☐ b. If yes, what kind of financial products? --> *Table on extra sheet* c. If no, why is your institution not offering specifically tailored financial products and services?	
F) Risk Management		**COMMENTS**
23.	How high do you perceive the **default risk** of agricultural loans?	

0 (no risk)	1 (very low risk)	2 (low risk)	3 (medium risk)	4 (high risk)	5 (very high risk)

24.	At which risk stage (0-5) are the risks too high to give a loan?	
25.	Which are the **main factors** for the default of agricultural loans?	

	0 (no risk)	1 (very low risk)	2 (low risk)	3 (medium risk)	4 (high risk)	5 (very high risk)
Production Risks (These arise from various factors, such as input supplies, lacking or late credit, low quality standards, improper storage and packing, etc.)						
Management Risks (These arise when business owners/managers lack management capacities.)						
Supply risks (Situations where farmers do not honour their contractual supply obligations)						
Market risks (These refer to the inability to sell on time, in the right quantities and/or an acceptable quality standard; absence of a marketing channels)						
Price risks (These arise from fluctuations in market prices.)						

	Climate/weather risks (These are related to shocks produced by weather, such as droughts, floods, etc.)							
	Policy & legislation-related risks (These are related to changes in the policy and strategic as well as legal and institutional framework set by the government.)							
26.	How does your institution try to **mitigate** these risks?							
27.	Which **regulations** impede or support financiers to extend their products and services to the agricultural sector?							

Degree of influence		**1 (very negatively)**	**2 (negatively)**	**3 (no influence)**	**4 (positively)**	**5 (very positively)**
Regulations…	**Which are they exactly?**					
…for financial institutions						
…for the agricultural sector						

28.	How do the following **factors influence agricultural finance** in Mozambique?					

Degree of influence	**very negatively**	**negatively**	**no influence**	**positively**	**very positively**	**I don't know.**
Infrastructure (water, electricity, roads, communications)						
Government Policies						
Contract-enforcing possibilities						
Financial Literacy						
Domestic Market						
Export markets						
Rural extension services						
Availability of agrifinance experts						
Other a):						
Other b):						

G) Innovative financing models		COMMENTS
29.	Are you familiar with the concept of Agricultural Value Chain Finance (AVCF)? Yes ☐ → question 33 No ☐ → question 30	
30.	AVCF comprises instruments like warehouse receipt financing, suppliers credit, buyers credit, lead firm financing (contract-farming and out-grower schemes), factoring. Did your institution ever thought about using these instruments? Yes ☐ → question 33 No ☐ → question 34	
31.	Does your institution work with this approach? Yes ☐ → question 32 No ☐ → question 34	
32.	In which context/project? And with which instruments?	
33.	What potential do you see in using these instruments to finance agricultural value chains through formal financial institutions?	
H) Conclusion		**COMMENTS**
34.	a. Does your institution plan to extend its agricultural finance portfolio? Yes ☐ No ☐ b. In which areas/provinces? c. How?	
35.	What kind of assistance would you wish for from the government as well as multilateral and bilateral donors to strengthen agricultural finance within your institution?	
36.	Can you give us your annual report, please? Yes ☐ No ☐	
37.	Can you give us any contacts (to other banks) which would be interesting for our study?	
38.	**Thank you very much for your time. If you have any feedback on our survey or our interview we would appreciate your input.**	

Financial products (offered by commercial banks and MFIs)*

Product name	Type of product	Target group	Financing objective	Term	Volume in MZN.	Flexible repayment modalities		Interest rate	Other fees	Specific require-ments
						Yes	No			

*This template has been used for collecting data from commercial banks and MFIs.

Annex 9: Bank survey questionnaires (commercial banks and MFIs) (cont.)

Standardized questionnaire for MFIs

Name of FI: **Code of the interview:** ☐☐

Name of the interviewed staff member:

Position: **Organizational unit (department):**

Date: **Location:**

General information about the institution:

A) Introduction		**COMMENTS**
39.	For how long have you been working in the financial sector? Less than 1 year ☐ 1-3 years ☐ 3-10 years ☐ More than 10 years ☐	
40.	Total number of branches in the country:_____ In Maputo City: _____Total outside Maputo City _____	
41.	How much is the total number of staff?	
42.	Who are your main clients? Individuals ☐ SMEss ☐ Other ☐ _____	
43.	How many active borrowers do you have? around 6000	
44.	How high are your interest rates for…. ….commercial loans? _____per cent …consumer loans? _____per cent	

B) Rural Finance		**COMMENTS**
45.	What are the main challenges to offer financial products and services in rural Mozambique?	
46.	a. Did you ever try to tap into the informal sector? Yes ☐ No ☐ b. If yes, what are your experiences? These people have no knowledge on their rights and how to claim them.	
47.	a. Did you ever try to link up with informal financing providers? Yes ☐ No ☐ --> go to 10. b. If yes, with whom? ASCAs ☐ Credit Cooperatives ☐ Money Lenders ☐ Micro operators ☐ Other: ☐ _____ c. What are your experiences in working with informal financing providers?	
C) AGRIFINANCE		**COMMENTS**
48.	a. How attractive are investments into the agricultural sector for your institution? Not attractive ☐ Limited ☐ Attractive ☐ Very attractive ☐ b. Please explain your answer:	
49.	Is your institution lending to the agricultural sector? Yes ☐ --> **Questionnaire-Part A** No ☐ --> **Questionnaire-Part B**	

Part A

D) Institutional embedment		COMMENTS
50.	a. Do you have a department or a specific organization unity for agriculture? Yes ☐ --> Questions 13 to 16 No ☐ 12.b. If no, how many employees have expertise in the agricultural sector?	
51.	How many people work in that department?	
52.	How many of them have agricultural expertise?	
53.	Since when does it exist?	
54.	Why did your institution decide to build a particular department for agricultural finance?	
55.	a. Do you personally have expertise in agricultural finance? Yes ☐ No ☐ b. If yes, where did you gain this expertise in agrifinance?	
E) Financial products and services for the agricultural sector		**COMMENTS**
56.	Which requirements do clients from the agricultural sector need to fulfil to be credit worthy? Legal documents (I.D., register certificate of business,...) ☐ Financial records ☐ Business plan ☐ Assets ☐ Other: ☐_____	

57.	What do you accept as collaterals? Buildings ☐ Technical equipment (incl. Machinery) ☐ Irrigation system ☐ Crops ☐ Forward-contracts ☐ Warehouse Receipts ☐ Vehicles ☐ Steady income ☐ Other: ☐ Animals and other movable assets	
58.	How do you get your information about your clients from the agricultural sector next to reading the presented documents? We visit the business/production site *before* granting the product. ☐ We contact business partners or other stakeholders of the client. ☐ We visit the business/production site *after* granting the product. ☐ We contracted services to visit business/production sites. ☐ Other ☐ _____	
59.	a. Do you offer **advisory services** to agricultural entrepreneurs and farmers? Yes ☐ No ☐ b. If yes, what do they include?	
60.	How high is the total share of agricultural financing in your portfolio?	
61.	a. Does your institution offer financial products and services **specifically tailored** to the agricultural sector? Yes ☐ No ☐ b. **If yes,** what kind of financial products? --> *Table on extra sheet* c**. If no,** why is your institution not offering specifically tailored financial products and services?	

Annex 10: Farm survey questionnaire

1. Básico

QUESTIONÁRIO - SLE / ISPM MANICA	
NÚMERO DO INQUÉRITO: (Ex: Equipa B1 - N° Entrevista 1 = B1-1)	
NÚMERO DA EQUIPA	(B1) Michaela e Osvaldo (B2) Clemente (B3) Xavier (B4) Equipa rotativa
A1.A. DISTRITO	(1) Báruè (2) Manica (3) Sussundenga (4) Macate (5) Outro: especifique
A1.B. POSTO ADMINISTRATIVO	
A1.C. LOCALIDADE	
A2. COMUNIDADE	
A3. NOME DA EXPLORAÇÃO AGRÍCOLA/ EMPRESA	(99) Não tem nome
A4. NOME DA PESSOA ENTREVISTADA	
A5. POSIÇÃO NA EMPRESA	
A6. SEXO DA PESSOA ENTREVISTADA	(1) Mulher (2) Homem
A7. IDADE DA PESSOA ENTREVISTADA	
A8. NÍVEL DE ESCOLARIDADE	(ANOS ESCOLARES; 0 A 13)
A9. DIA / MÊS/ ANO DA ENTREVISTA:	
A10. HORAS	
A11. GPS DATA	
A12. GPS CÓDIGO (N° do Inquérito)	
Cumprimentos, permissão de fazer a sondagem, todas as informações são confidenciais e anónimas	
A13. Resultados da entrevista Completa..... 1 Ausente ..... 2 Recusada ..... 3 Parcialmente completada ..... 4 Não capacitado ..... 5 Outras pessoas presentes ..... 6 Observações..... 96	

1.1. Quantas pessoas moram na sua casa? _____ (Não sei = 99)

1.2. Quantas pessoas trabalham o ano inteiro na sua farma? _____ (Não sei = 99)

1.3. Quantas destas pessoas, que trabalham o ano inteiro na sua farma, são seus familiares? _____ (Não sei = 99)

1.4. Quantas pessoas trabalham apenas em temporadas (trabalho sazonal)?_____ (Não sei = 99)

1.5. Quantas destas pessoas, que trabalham apenas em temporadas (trabalho sazonal), são seus familiares?_____ (Não sei = 99)

1.6. Quais são os seus rendimentos principais?

RESPOSTA MÚLTIPLA	
Actividades agrícolas	1
Emprego regular	2
Outro trabalho curto	3
Bolsas, pensões, subvenções	4
Dinheiro de familiares ou amigos	5
Outro (**especificar**)	6
Não sei	99 ***saltar para 1.9.**

Se só tem um: ***saltar para 1.9.**

1.7. Qual destes rendimentos é o maior? (1-6) _____ (Não sei = 99)

1.8. Como avalia os rendimentos da agricultura em relação aos rendimentos totais?

RESPOSTA ÚNICA	
Muito importante, é quase tudo o que ganho	1
Importante, mas tenho outras fontes de rendimento importantes	2
Não muito importante	3
Não sei	99

1.9. Quantas pessoas que trabalham na sua farma são homens?_____ (Não sei = 99)

1.10. Quantas pessoas que trabalham na sua farma são mulheres?_____ (Não sei = 99)

1.11. Quantos hectares?

	Resposta concreta	0 (1)	0,1-2 (2)	2,1-5 (3)	5,1-20 (4)	20,1-50 (5)	>50,1 (6)	Não sei (99)
1.11.1. Você tem em total								
1.11.2. Cultiva-os continuamente?								
1.11.3. Você aluga?								
1.11.4. Você tem DUAT? ***								
1.11.5. Você irriga?		***saltar para 1.15.**						***saltar para 1.15.**

Se pode quantificar os hectares →preencher 'resposta concreta' em hectares

Caso que têm DUAT [1.11.4. Resposta concreta, (2), (3), (4), (5), (6) ou 99]
***saltar para 1.13** (Irrigação) ou ***saltar para 1.15** (se não rega)

1.12. Você planeia de conseguir um DUAT?

RESPOSTA ÚNICA		**Porquê?**
Sim	1	
Não	2	
Não sei	99	

1.13. Que sistema de irrigação você usa?

RESPOSTA MÚLTIPLA	
Irrigação por gote	1
Aspersor fixo	2
Aspersor móvel	3
Outro (**especificar**)	4
Não sei	99

1.14. Como transporta a água?

RESPOSTA MÚLTIPLA	
Sistema de gravidade	1
Bomba eléctrica (gerador)	2
Bomba manual	3
Outro (**especificar**)	4
Não sei	99

1.15. Quais são as suas fonte da energia na sua farma e para que os utiliza?
(para processamento: (1) sim (2) não)

	(1) Irrigação	(2) Lavagem	(3) Preparação	(4) Outro (**especificar**)	(5) Não tenho acesso à energia	(99) Não sei
Electricidade da rede nacional						
Gerador						
Painel solar						
Outro **(especificar)**						

1.16. Como faz a sua produção?

RESPOSTA MÚLTIPLA	
Manualmente (enxada)	1
Com juntas de bois	2
Com tractor	3
Outro (**especificar**)	4
Não sei	99

1.17. Você possui…

RESPOSTA MÚLTIPLA	Sim	Não	Em construção
1.17.1. Casa convencional*	1	2	3
1.17.2. Celular	1	2	
1.17.3. Televisão	1	2	
1.17.4. Radio	1	2	
1.17.5. Bicicleta	1	2	
1.17.6. Moto	1	2	
1.17.7. Carro	1	2	
1.17.8. Tractor	1	2	
1.17.9. Bois	1	2	
1.17.10. Sistema de irrigação	1	2	
1.17.11. Contracto de venda	1	2	
1.17.12. Armazenagem	1	2	
1.17.13. Outro (**especificar**)	1	2	

* **Casa convencional** é uma unidade habitacional unifamiliar que tenha quarto(s), casa de banho, cozinha dentro de casa , e construída com materiais duráveis (bloco de cimento, tijolo, chapa de zinco/lusalite, telha/laje de betão). Pode ser de rés-do-chão, mais 1 ou 2 pisos.

2. Produção

Que cultura cultiva?	**Tipo de cultura** *(Não ler)* (1) Manga ou Líchia (2) outra perene** (3) não perene	**Quantos hectares cultiva desta cultura?** Cifra concreta (99) Não sei	**Você vende os produtos?** (1) Sim (2) Não ***saltar para próxima cultura** (99) Não sei	**Para quem?** RESPOSTA MÚLTIPLA (1) Mercado local (2) Comprador itinerante (3) Associação (4) Cooperativa (5) Processamento (6) Grossista (7) Comprador fora do país (8) Outro (**especificar**) (99) Não sei		**Onde vende?** RESPOSTA MÚLTIPLA: (1) Povoado (2) Em outro lugar no Distrito (4) Em outro lugar na Província (6) Noutra Província (7) Noutro país (8) Na porta da farma (9) Outro (**especificar**) (99) Não sei		**Você irriga esta cultura?** (1) Sim (2) Não (3) Parcialmente (99) Não sei
				Se são mais que um: → Se só é um: ***saltar**	**Para quem vende a maior quantidade?**	Se são mais que um: → Se só um é: ***saltar**	**Onde vende a maior quantidade?**	
2.1.1.	2.1.2	2.1.3.	2.1.4.	2.1.5.	2.1.6.	2.1.7.	2.1.8.	2.1.9.
2.2.1.	2.2.2.	2.2.3.	2.2.4	2.2.5.	2.2.6.	2.2.7.	2.2.8.	2.2.9.
2.3.1.	2.3.2.	2.3.3.	2.3.4.	2.3.5.	2.3.6.	2.3.7.	2.3.8.	2.3.9.
2.4.1.	2.4.2.	2.4.3.	2.4.4	2.4.5	2.4.6	2.4.7.	2.4.8.	2.4.9.
2.5.1.	2.5.2.	2.5.3.	2.5.4.	2.5.5.	2.5.6.	2.5.7.	2.5.8.	2.5.9.
2.6.1.	2.6.2.	2.6.3.	2.6.4	2.6.5.	2.6.6.	2.6.7.	2.6.8.	2.6.9.
2.7.1.	2.7.2.	2.7.3.	2.7.4.	2.7.5.	2.7.7.	2.7.7.	2.7.8.	2.7.9.

Se **não** aparece **Manga, Líchia** ou outra **fruta perene** → Parte A Se **sim** -> Parte B

** Outros perenes: Abacate, Banana, Macadamia, Cajú, Citrinus (completar)

Note*:* Part A targets those actors outside of the VCs of perennial fruit crops and it is not included in this report due to limitations in terms of numbers of pages of the publication.

Parte B

(para actores dentro das Cadeias de Valor de frutas perenes)

Caso que na questão 1.17. respondeu, que têm um contrato de venda, ***saltar para P.3.2.**

3.1. Com quem você tem o referido contrato de venda? Para qual cultura?

RESPOSTA MÚLTIPLA **Comprador**		**Cultura**
Mercado local	1	
Comprador itinerante	2	
Associação	3	
Processamento	4	
Grossista	5	
Comprador fora do país	6	
Outro (**especificar**)	7	
Não sei	99	

P.3.2. Produção de Manga, Líchia e outros

	P.3.2.1. **Manga** Cifra concreta (99) Não sei	P. 3.2.2. **Líchia** Cifra concreta (99) Não sei	P.3.2.3. **Outro** Cifra concreta (99) Não sei
Qual é a quantidade produzida por ano? Cifra concreta (99) Não sei	P.3.2.1.1. Kg | Sacos | Outro (esp.)	P.3.2.2.1. Kg | Sacos | Outro (esp.)	P.3.2.3.1. Kg | Sacos | Outro (esp.)
Você vende diferentes qualidades? (1) Sim (2) Não (99) Não sei	P.3.2.1.2.	P.3.2.2.2.	P.3.2.3.2.
Qual é o preço que você consegue na temporada alta (principal)? **(99) Não sei** caso venda mais que uma qualidade, indique qualidade com 1°/2°/3°	P.3.2.1.3. Kg | Sacos | Outro (esp.)	P.3.2.2.3. Kg | Sacos | Outro (esp.)	P.3.2.3.3. Kg | Sacos | Outro (esp.)
Qual é o preço que você consegue na temporada baixa (secundaria)? (99) Não sei caso venda mais que uma qualidade, indique qualidade com 1°/2°/3°	P.3.2.1.4. Kg | Sacos | Outro (esp.)	P.3.2.2.4. Kg | Sacos | Outro (esp.)	P.3.2.3.4. Kg | Sacos | Outro (esp.)
Quanto consegue vender? (1) 0-50 % (2) 50-75 % (3) 75-100 %	P.3.2.1.5.	P.3.2.2.5.	P.3.2.3.5.
	Caso que em alguma das três (P.3.2.1.5., P.3.2.2.5., P.3.2.3.5.) respondeu **(1) (2)** → P.3.2.3. Se **(3), *saltar para 3.3.**		
Quais são as razões por não vender mais?	P.3.2.1.6.	P.3.2.2.6.	P.3.2.3.6.

Você já fez uma prova do solo na sua farma?

RESPOSTA ÚNICA		**Para que?**
Sim	1	
Não	2	
Não sei	99	

3.2. Algo mudou na sua produção nos últimos 5 anos?

RESPOSTA ÚNICA	
Não	2 ***Saltar para 4.1.**
Não sei	99 ***Saltar para 4.1.**
Sim	1

3.3. O que mudou?

_____

_____

4. Insumos

4.1. Que tipo de insumo você utiliza?		**Onde você compra estes insumos?*** **	
RESPOSTA MÚLTIPLA		Código (4.1.1.)	Nome (4.1.2.)
Mudas	1		
Sementes	2		
Fertilizantes	3		
Herbicidas	4		
Pesticidas	5		
Outro (**especificar**)	6		
Não utilizo insumos	7 ***Saltar para *P.4.2.3.***		
Não sei	99 ***Saltar para *P.4.2.3.***		

*** Nota: inserir o código dos seguintes + Nome do fornecedor

(1) Produção propria	(5) Grossista	(9) Comerciante/agente ambulante
(2) Viveiro	(6) Processador	(10) Outro (**especificar**)
(3) Cooperativa	(7) Retalhista	(99) Não sei
(4) Associações	(8) Agência governamental	

4.2. Você tem que pagar estes fornecedores imediatamente ou você pode pagar quando tenha rendimentos da colheita?

RESPOSTA MÚLTIPLA	
Depois da colheita	1
Imediatamente	2
Doação	3
Outro (**especificar**)	4
Não sei	99

P.4.2.1. Você enfrenta algum problema em relação às mudas?

RESPOSTA ÚNICA					
P.4.2.1.1. **Manga**		P.4.2.1.2. **Líchia**		P.4.2.1.3 **Outros**	
Não	2	Não	2	Não	2
Não sei	99	Não sei	99	Não sei	99
Sim	1	Sim	1	Sim	1
Caso que respondeu Não (2) ou Não sei (99) ***saltar para P.4.2.3.**					

P.4.2.2. Por favor, indique o problema que enfrenta em relação às mudas

RESPOSTA MÚLTIPLA					
P.4.2.2.1. **Manga**		P.4.2.2.2. **Líchia**		P.4.2.2.3. **Outros**	
Não estão suficientes mudas disponíveis	1	Não estão suficientes mudas disponíveis	1	Não estão suficientes mudas disponíveis	1
A entrega das mudas demora muito	2	A entrega das mudas demora muito	2	A entrega das mudas demora muito	2
A qualidade da muda não é apropriada	3	A qualidade da muda não é apropriada	3	A qualidade da muda não é apropriada	3
As mudas são muito caras	4	As mudas são muito caras	4	As mudas são muito caras	4
Outro (**especificar**)	5	Outro (**especificar**)	5	Outro (**especificar**)	5
Não sei	99	Não sei	99	Não sei	99

Notas:

_____

_____

P.4.2.3. Você enfrenta algum problema em relação à colheita?

RESPOSTA ÚNICA					
P.4.2.3.1. **Manga**		P.4.2.3.2. **Líchia**		P.4.2.3.3 **Outros**	
Não	2	Não	2	Não	2
Não sei	99	Não sei	99	Não sei	99
Sim	1	Sim	1	Sim	1
Caso que respondeu Não (2) ou Não sei (99) ***saltar para P.4.2.5.**					

P.4.2.4. Por favor, indique o problema que enfrenta em relação à colheita

RESPOSTA MÚLTIPLA					
P.4.2.4.1. **Manga**		P.4.2.4.2. **Líchia**		P.4.2.4.3. **Outros**	
Falta de mão-de-obra	1	Falta de mão-de-obra	1	Falta de mão-de-obra	1
Falta de equipamento (**especificar**)	2	Falta de equipamento (**especificar**)	2	Falta de equipamento (**especificar**)	2
Falta de transporte	3	Falta de transporte	3	Falta de transporte	3
Outro (**especificar**)	5	Outro (**especificar**)	5	Outro (**especificar**)	5
Não sei	99	Não sei	99	Não sei	99

Notas:

_____

P.4.2.5. Você enfrenta outros problemas **em relação à produção?**
(manutenção, preparação da terra…)

RESPOSTA ÚNICA					
P.4.2.5.1. **Manga**		P.4.2.5.2. **Líchia**		P.4.2.5.3 **Outros**	
Não	2	Não	2	Não	2
Não sei	99	Não sei	99	Não sei	99
Sim	1	Sim	1	Sim	1
Caso que respondeu Não (2)ou Não sei (99) ***saltar para P.4.2.7**					

P.4.2.6. Por favor, indique

P.4.2.6.1. **Manga**	P.4.2.6.2. **Líchia**	P.4.2.6.3. **Outros**

P.4.2.7. Você planeia expandir a produção de Líchia ou Manga ou outra fruta perene?

RESPOSTA ÚNICA					
P.4.2.7.1. **Manga**		P.4.2.7.2. **Líchia**		P.4.2.7.3. **Outros**	
Não ***Saltar para 4.2.9.**	2	Não ***Saltar para 4.2.9.**	2	Não ***Saltar para 4.2.9.**	2
Não sei***Saltar para 4.2.10.**	99	Não sei ***Saltar para 4.2.10.**	99	Não sei ***Saltar para 4.2.10.**	99
Sim	1	Sim	1	Sim	1

P.4.2.8. Se sim, planeia expandir….

	Manga	**Líchia**	**Outro**
Porquê?	P.4.2.8.1.1.	P.4.2.8.2.1.	P.4.2.8.3.1.
Qual e a area planeada? em hectares (99) Não sei	P.4.2.8.1.2.	P.4.2.8.2.2.	P.4.2.8.3.2.

***Saltar para 4.2.10**

P.4.2.9. Se não, porquê não?

RESPOSTA MÚLTIPLA					
P.4.2.9.1. **Manga**		P.4.2.9.2. **Líchia**		P.4.2.9.3. **Outros**	
É muito caro	1	É muito caro	1	É muito caro	1
Falta de equipamento (**especificar**)	2	Falta de equipamento (**especificar**)	2	Falta de equipamento (**especificar**)	2
Falta de sistema de irrigação	3	Falta de sistema de irrigação	3	Falta de sistema de irrigação	3
Faltam insumos (**especificar**)	4	Faltam insumos (**especificar**)	4	Faltam insumos (**especificar**)	4
Falta de Mão-de-Obra	5	Falta de Mão-de-Obra	5	Falta de Mão-de-Obra	5
Outro (**especificar**)	6	Outro (**especificar**)	6	Outro (**especificar**)	6
Não sei	99	Não sei	99	Não sei	99

P.4.2.10. Como era quando começou a produzir manga/líchia/outra perene? Como aumentou à área que tem hoje? Como financia tudo?

P.4.2.10.1. **Manga**	P.4.2.10.2. **Líchia**	P.4.2.10.3. **Outras**

P.4.2.11. O quê você precisa para melhorar a sua produção de …

P.4.2.11.1. **Manga**	P.4.2.11.2. **Líchia**	P.4.2.11.3. **Outras**

	Manga	P.4.2.12.2. **Líchia**	P.4.2.12.3. **Outras**
Espaçamento (m x m)	P.4.2.12.1.1	P.4.2.12.2.1.	P.4.2.12.3.1.
Culturas intercalares (1) Sim (2) Não (3) Não sei	P.4.2.12.1.2.	P.4.2.12.2.2.	P.4.2.12.3.2.

5. Assistência Técnica

5.1. Que tipo de assistência técnica tem recebido?

RESPOSTA MÚLTIPLA	
Serviço de extensão do público	1
Serviço de extensão duma empresa privada	2
Outro (**especificar**)	3
Não tenho recebido nenhuma até agora	4 ***Saltar para 5.5.**
Não sei	99 ***Saltar para 5.5.**

Se só tem recibido uma ***Saltar para 5.3**

5.2. Qual destes tipos utiliza mais? _____ (Não sei = 99)

5.3. Quantas vezes utiliza este tipo de assistência técnica?

RESPOSTA ÚNICA	
Mais que uma vez ao ano	1
Uma vez ao ano	2
Menos que uma vez ao ano	3
Não sei	99

5.4. A assistência técnica te ajudou a superar algum problema?

RESPOSTA ÚNICA		**Qual?**
Sim	1	
Não	2	
Não sei	99	

5.5. Você chamaria os serviços de extensão se tivesse algum problema específico?

RESPOSTA ÚNICA	
Sim	1 ***Saltar para 6.1.**
Não	2
Não sei	99

5.6. Porquê não?

_____

_____

6. Financiamento

6.1. Nos últimos 10 anos, como você financiou os seus investimentos?

RESPOSTA MÚLTIPLA	
Rendimentos das minhas culturas	1
Crédito	2
Outro (**especificar**)	3
Não sei	99

Se aparece crédito ***Saltar para 6.4**

6.2. Nos últimos 10 anos alguém da sua casa/farma recebeu um crédito ou créditos?

RESPOSTA ÚNICA	
Sim	1 ***Saltar para 6.4**
Não	2 ***Saltar para 6.8.**
Não sei o que é um crédito	3

6.3. Você nos últimos 10 anos pediu emprestado dinheiro de alguém?

RESPOSTA ÚNICA	
Não	2 ***Saltar para 6.8.**
Sim	1

6.4. Tabela de Crédito

Qual foi/é o valor do crédi-to? (em MT)	**De quem?** (1) Instituição governamental (2) ONG (3) Banco (4) Instituição de microfinanças (4) Associação (5) Empresas (5) Comprador (6) Fornecedor (7) Familiares (8) Amigos (9) Grupo de poupança e crédi-to (**especificar**) (10) Agiotas (11) Outros, esp: (99) Não sei	**Por quanto tempo recebeu?** (meses)	**Quantas vezes faz/fez reembolso?** (1) Uma vez à semana (2) Cada mês (3) Depois de cada venda (4) Flexível ou pago quando posso (5) Outro (esp.) (99) Não sei	**Qual foi a taxa de juro?**	**Quem recebeu na sua farma?** (1) mulher (2) homem	**Qual é a avali-ação que você faz sobre esta taxa de juro? LER** (1) Baixo (2) Alto, mais acessível, faria assim outra vez (3) Muito alto, pouquinho baixo da minha margem de lucro (4) Alto demais, não foi rentável ter este crédito (99) Não sei	**O que servia como garan-tia?** (1) Casa de forma conven-cional (2) Viatura (3) Contracto de venda (4) A cultura (5) Equipamen-to (6) Sistema de irrigação (7) Outros (esp.) (99) Não sei	**Como quê gastou o dinheiro?** RESPOSTA MULTIPLA: (1) Mais terra (2) DUAT (3) Mão-de-obra (4) Electricidade (5) Fertilizantes (6) Herbicidas /pesticidas (7) Mudas (8) Gerador (9) Sistema de irrigação (10) Viaturas (tractor etc.) (11) Consumo (12) Educação (13) Saúde (14) Outro (esp.) (99) Não sei	**Vai fazer/fez o reembolso completo?** (1) Sim **Saltar para próximo* (2) Não (99) Não sei **Se Não / Não sei, olha folha seguinte**
6.4.1.1.	6.4.1.2.	6.4.1.3.	6.4.1.4.	6.4.1.5.	6.4.1.6.	6.4.1.7.	6.4.1.8.	6.4.1.9.	6.4.1.10.
6.4.2.1.	6.4.2.2.	6.4.2.3.	6.4.2.4.	6.4.2.5.	6.4.2.6.	6.4.2.7.	6.4.2.8.	6.4.2.9.	6.4.2.10.
6.4.3.1.	6.4.3.2.	6.4.3.3.	6.4.3.4.	6.4.3.5.	6.4.3.6.	6.4.3.7.	6.4.3.8.	6.4.3.9.	6.4.3.10.

Continuação da tabela

	Porquê não?
6.4.1.11.	
6.4.2.11.	
6.4.3.11.	

6.5. Você planeia pedir outro crédito?

RESPOSTA ÚNICA	
Não	2 ***Saltar para 6.18.**
Sim	1

6.6. Onde você pediria o próximo crédito e porquê lá?

RESPOSTA MÚLTIPLA		PORQUÊ?
Instituição governamental	1	
ONG	2	
Banco	3	
Instituição de microfinanças	4	
Associação	5	
Empresas	6	
Comprador	7	
Fornecedor	8	
Familiares	9	
Amigos	10	
Grupo de poupança e crédito (**especificar**)	11	
Xitiques	12	
Agiota	13	
Outros, especifique:	14	
Não sei	99	

Se aparece banco ***Saltar para 6.15.**

6.7. Porquê não iria a um banco a pedir um crédito?

_____

_____

***Saltar para 6.15.**

6.8. Alguma vez solicitou um crédito?

RESPOSTA ÚNICA	
Sim	1 ***Saltar para 6.10.**
Não	2

6.9. Por que você não tem pedido emprestado dinheiro?

RESPOSTA MÚLTIPLA	
Não necessito	1
Não há lugar onde apanhar	2
Acho que não posso reembolsar	3
As condições não foram boas	4
Não sei	99

***Saltar para 6.11.**

6.10. Porquê se recusaram de te dar o empréstimo?

RESPOSTA ÚNICA	
Falta de garantias	1
Falta da contabilidade	2
Falta de registo	3
Falta de DUAT	4
Outro (**especificar**)	5
Não sei	99

6.11. Quais são os desafios para conseguir um empréstimo?

6.12. Se as condições fossem acessíveis, onde você preferiria pedir um empréstimo e porquê?

RESPOSTA MÚLTIPLA		PORQUÊ?
Instituição governamental	1	
ONG	2	
Banco	3	
Instituição de microfinanças	4	
Associação (**especificar**)	5	
Empresas	6	
Comprador	7	
Fornecedor	8	
Familiares	9	
Amigos	10	
Grupo de poupança e crédito (**especificar**)	11	
Agiotas	13	
Outros (**especificar**)	14	
Não sei	99	

Se aparece banco ***Saltar para 6.14.**

6.13. Porquê não iria a um banco a pedir um crédito?

_____

_____

6.14. Para quê utilizaria o empréstimo?

RESPOSTA MÚLTIPLA	
Mais terra	1
DUAT	2
Mão-de-obra	3
Electricidade	4
Fertilizantes	5
Herbicidas/Pesticidas	6
Mudas	7
Gerador	8
Sistema de irrigação	9
Viaturas (tractor etc.)	10
Consumo	11
Educação	12
Saúde	13
Outro (***especificar***)	14
Não sei	99

6.15. Qual seria o valor aproximado do empréstimo? (MT)	**6.16. Em quanto tempo você pensa reembolsar o crédito** (meses)	**6.17. Qual são os custos que você acha que seriam acessíveis para si?** (MT) ou %	
		(1) Mensal (2) Anual (3) Total	

6.18. Você faz poupança?

RESPOSTA ÚNICA	
Não	2 ***Saltar para 6.21.**
Sim	1

6.19. Como faz poupança?

RESPOSTA MÚLTIPLA		Especificar o nome da instituição
Em casa	1	
Grupos de poupança (especificar)	2	
Banco	4	
Outro (***especificar***)	5	
Não sei	99	

6.20. Para que utiliza o dinheiro poupado?

RESPOSTA MÚLTIPLA	
Mais terra	1
DUAT	2
Mão-de-obra	3
Electricidade	4
Fertilizantes	5
Herbicidas/Pesticidas	6
Mudas	7
Gerador	8
Sistema de irrigação	9
Viaturas (tractor etc.)	10
Consumo	11
Educação	12
Saúde	13
Outro (***especificar***)	14
Não sei	99

6.21. Você usa M-Kesh ou M-Pesa?

RESPOSTA ÚNICA		
Sim	1	→ **Para que?**
Não	2	→ **Porquê não?**
Não conheço M-Kesh e M-Pesa	3	
Não sei	99	

6.22. (já não existe)

6.23. Em que investiria para aumentar a produção ou produtividade da sua exploração agrícola?

RESPOSTA MÚLTIPLA	
Mão-de-obra	1
Electricidade	2
Fertilizantes	3
Sementes	4
Herbicidas/Pesticidas	5
Mudas	6
Gerador	7
Sistema de irrigação	8
Viaturas (tractor etc.)	9
Mais terra	10
Outro (***especificar***)	11
Não sei	99

6.24. (Já não existe)

6.25. Você sabe quanto gastou em insumos no ano passado?

RESPOSTA ÚNICA	
Sim	1
Não	2

6.26. Você sabe quanto dinheiro recebeu pela venda dos seus produtos no ano passado?

RESPOSTA ÚNICA	
Sim	1
Não	2

6.27. A sua farma está registada?

RESPOSTA ÚNICA	
Sim	1
Não	2

6.28. Você tem um plano de investimentos para o próximo ano?

RESPOSTA ÚNICA	
Sim	1
Não	2
Não sei o que é plano de investimentos	3

6.29. Durante os últimos 3 anos, você perdeu parte da sua cultura por causa de….

RESPOSTA MÚLTIPLA	
Seca	1
Cheias	2
Ciclone	3
Animai salvagens	4
Roubos	5
Doenças	6
Não perdi nada	7 ***Saltar para 6.31.**

6.30. Se sim, como financiou a perda da cultura?

_____
_____
_____

6.31. Você é membro duma organização de agricultores?

RESPOSTA ÚNICA		***Saltar para**
Sim	1	
Sim, mais já não	2	6.34.
Não	3	6.36.
Não sei	99	6.37.

6.32. Que tipo de organização é?_____

6.33. Que benefícios você obtém como membro duma organização?

_____

***Saltar para 6.37.**

Que tipo de organização foi? _____

6.34. Porquê saiu?

_____
_____
_____

***Saltar para 6.37**.

6.35. Você gostaria de participar numa organização de agricultores?

RESPOSTA ÚNICA		Porquê
Sim	1	
Não	2	

6.36. Você estaria interessado em produzir outra fruta perene de maneira comercial? (Dar exemplos: Manga, Líchia, Macadâmia, Caju, Banana)? E porquê?

_____
_____
_____

6.37. Porquê ainda não fez?

_____
_____

6.38. Quais são os principais problemas na sua farma?

_____
_____

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